The PHOTOFACT Servicer

AUGUST 22nd, 1946 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 1, No. 4

Here we are with a new mast-head and a new title! Supplanting—"To All Users of PHOTOFACT Folders" included in previous PHOTOFACT Folder Sets, this bulletin now assumes broader purposes.

The PHOTOFACT Servicer
will tell you the news about PHOTOFACT Folders and how to use them.

The PHOTOFACT Servicer
will bring you news about the Howard W. Sams Institute, and the activities of our engineers.

The PHOTOFACT Servicer
will bring you service hints, business suggestions, case histories and other information of benefit to the service engineer.

Like PHOTOFACT *Folders* themselves, the pages of this bulletin are open to suggestions for improvements. Our format is flexible. We are here to serve you.

★ ★

We are happy, and as proud as a new papa, the way letters keep coming in, telling us how much users like PHOTOFACT Folders. We expected our share of brick-bats with the bouquets. Instead, where we don't get praise, we get helpful suggestions—and provided only that it is practical to use them we intend to incorporate every suggested improvement that will make PHOTOFACT Folders more useful.

It all goes to show what a grand group of men these service engineers are! Keep up the good work. We'll do our part.

★ ★

NEW PHONE NUMBER

Our phone number has been changed. Our single trunk line was kept so busy we had to invest in another one and the telephone company had to change our number. The new numbers are Market 6383 and Market 6384.

You still have a cordial invitation to visit us in Indianapolis whenever you can. Many of you who have been here to see us have been tremendously pleased and very much impressed with what you saw. At least that is what you told us.

★ ★

TRADE DIRECTORY?

We have had several requests for a trade directory—in other words, a list of all radio receiver manufacturers, replacement component parts manufacturers, and test equipment manufacturers, with their addresses.

Do you want such a compilation?

RECORD CHANGERS

"RECORD CHANGERS—SIMPLIFIED REPAIRING—PART 2" is included with this set of Folders. Additional valuable material on record changers will be furnished constantly. We are benefitting tremendously from the actual experience of testing record changers here in our laboratory. You too will receive the benefit of this experience just as soon as it is possible to publish our findings.

★ ★

NOW AND LATER

Folders in Set No. 3 were arranged alphabetically, rather than numerically, in response to the many requests we received for this arrangement. We are doing our best to comply with your requests, so that PHOTOFACT Folders give you everything you need in servicing aid and information.

★ ★

Some of the radio receiver manufacturers, as well as many of you, have asked us to place the alignment procedure note ahead of the actual alignment instructions.

Starting with PHOTOFACT Folder Set No. 4, this arrangement will prevail.

★ ★

Starting with Set No. 5, correction notices and manufacturers changes will be included. We know you are going to like this part of our service.

★ ★

WE'RE SORRY

In the third set, Folders Nos. 463-3 and 463-12 covering Packard Bell Model 651 and Hoffman Model A300, had the schematics reversed. This was caused by the printer's error. Replacement sheets for these two are included. They are Nos. 464-41 and 464-42 and replace sheets given in Set No. 3.

★ ★

INSTITUTE NOTES

Applications for membership in the Howard W. Sams Institute continue to arrive from every state in the Union.

A registration card is packed with each set of Folders, identified by the number of that set. IF YOU HAVE REGISTERED ONCE, IT IS NOT NECESSARY FOR YOU TO REGISTER AGAIN. Cards are furnished with each set of folders for two purposes—to enable you to register if you have not already done so, and after that, to accompany letters requesting service information, to enable us to speed the information to you without having to check our membership records.

PLEASE . . . NO EXAMINATION QUESTIONS!

One of the unanticipated demands on the Institute's time has been in the form of requests that we answer examination questions, apparently for school, trade association or license purposes.

We will do anything within the limits of reason to help our patrons with specific radio problems. However, we cannot undertake to answer examination questions because obviously this would be very unfair. We know that no patron would consider passing off our answers as their own and be guilty of a misrepresentation, but to give such answers would be depriving the student or applicant of the general information that they should have in obtaining the information from their texts. Accordingly, we ask you please do not send us examination questions. We must be impartial, and we cannot answer one without answering them all, and to do this is impossible.

★ ★

FIELD EXPERIENCE

Here is how to get your next set of PHOTOFACT Folders absolutely free! A certificate that is good for any one set of PHOTOFACT Folders in your distributor's stock will be awarded for each "Case History" accepted for publication. Send in your entries! Share your unusual shop experiences, repair wrinkles and successful profit-making ideas with others.

Technical experiences and new repair methods are welcome—but let's not stop there. We want new ideas on advertising, on getting new customers, bookkeeping, shop keeping, cabinet refinishing—ideas on all the things that go toward this business of making a living.

This is just another step to make the Howard W. Sams Institute a "clearing house" for the kind of information that will make your business more profitable—easier—and that puts more fun in living.

★ ★

NO CONSTRUCTIONAL DATA

Some of our patrons have been disappointed because we do not give "how to make it" information on test equipment, amplifiers, inter-communicator sets, and the like. There are good sound reasons why we cannot, and why we should not provide such information.

In our opinion design information is not worth the paper that it is printed on unless this information has been verified by the construction of a model, and this model thoroughly tested. Unless such a test is made, it is very possible that there may be unforeseen "bugs" in the design. It has been our experience that it is frequently more time-consuming and expensive to remove defects from equipment, than it was to make the original design. The cost of testing a single piece of equipment can run into hundreds of dollars.

The second point is that if the service man will place a reasonable valuation on his time, he will find home-made equipment will be far more costly than factory-made equipment if reasonably equivalent performance, stability and calibration is to be obtained.

If you wish to experiment as a hobby—that is swell. It is possible to gain a lot of experience that way. But let's not kid ourselves that we can compete with the modern production methods of commercial manufacturers. Let's not forget our fundamental objective—to make radio servicing more profitable—easier—more pleasant and dignified. That is the fundamental purpose of PHOTOFACT Folders and the Howard W. Sams Institute.

To this end we will do everything that is humanly possible to help you.

★ ★

NEW ORDER BLANK

Because so many of you have asked how you should order, we have devised the enclosed envelope order blank. From now on, one of these will be enclosed with every set of Folders. All you have to do is to address the envelope to your radio parts supply house, and he will do the rest.

If you have been unable to obtain Sets 1, 2 and 3, and, or, your radio parts supply house is out of them and does not have them, send your remittance directly to us and we will see that a distributor who has them in inventory ships you your sets promptly.

★ ★

Let's summarize things that we told you in previous issues of PHOTOFACT Folders, just in case you do not have them.

Changes and errors will be detailed in an early issue. In other words PHOTOFACT Folders will always be kept up-to-date.

If you want us to demonstrate PHOTOFACT Folders at one of your Service Meetings have your Secretary write and arrange a booking.

If you didn't get Set No. 1 and a copy of "How to Use It" tell us—we will gladly send you a copy Free. It tells you how to use and how to file PHOTOFACT Folders and how to become a member and keep your membership active in the Howard W. Sams Institute. (You can always send your check to us for back numbers. We will see that they are shipped promptly.)

There's no charge for exchanging imperfectly printed folders. If you have one send it back and we will gladly exchange it.

Be sure to write and tell us of your field experiences. You'll be given full credit for them and you'll be helping others. See our offer in this issue of free PHOTOFACT Folder Sets!

Don't forget, *please*—Tell us what receivers you want analyzed first—what replacement parts manufacturers you want us to list and how we can be of more help to you.

A folder:—

"How much is your labor worth?" by Don Shaw our Treasurer, is available without charge to members of the Institute. It will help you arrive at a fair charge for your labor.

We hope that during the coming months, many of you will find it possible to visit us and see for yourself what we are doing. The latchstring is always out so come whenever you can. Our new telephone numbers are MArket 6383 and MArket 6384.

★ ★

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Set No. 5—OCTOBER 14th.

Set No. 6—OCTOBER 28th.

Others will follow at the rate of two sets each month until all (about 1,000) 1946 models have been covered.

Simplified Repairing for Record Changers

Part II Explains Easy Servicing Procedure for Needle Landing Faults in Many Popular Makes

• Motors in record changers are by no means the weakest elements involved. Nevertheless, they are the prime movers . . . the originating point for everything that moves . . . and without a properly serviced motor, the changer is worthless.

Most changers have been designed for AC operation, although some deluxe changers use universal (AC-DC) motors. Since the troubles encountered with the induction type AC motors common to the record changers in current use are less numerous, we will dispose of them first.

Field Coil Checks

Burned out and shorted field coils are easiest to locate. The obvious check for a burned out coil is with an ohmmeter. However, there is no available information as to what constitutes a normal coil resistance for particular AC motors. Besides, the resistance would certainly be small enough so that one or a few shorted turns would be unlikely to show up without extremely precise, close-reading apparatus.

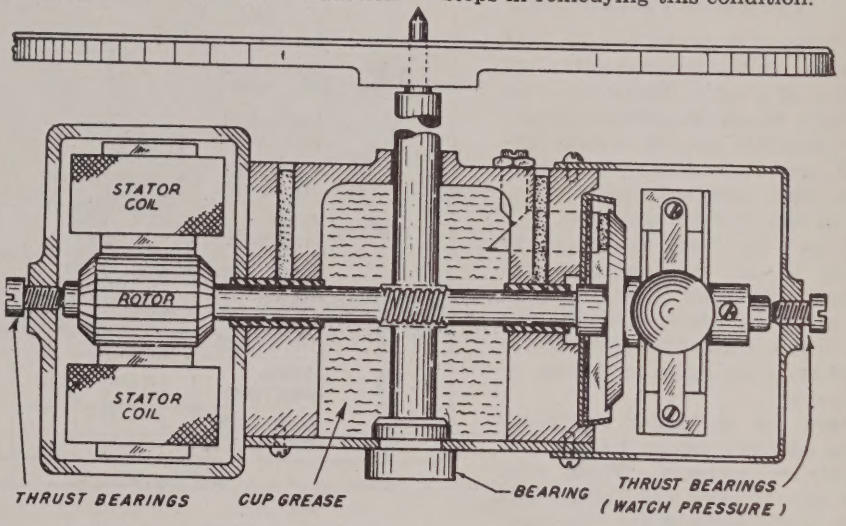
The best indicator of a short in a field coil is overheating. Most record changer motors are normally rather warm to the touch after a short continued period of operation. With shorts present the motor will run quite hot and in the extreme conditions will melt the wax potting compounds with which the coils are impregnated.

Other troubles that can be encountered in the AC induction motor are mainly mechanical. Rough handling can cause misalignment of shafts and the shafts may "freeze" in their bearings. These can sometimes be straightened by careful use of a vise.

In any instance where a shaft must be inserted in the vise or a drill press, care must be exercised in preventing damage to the shaft through scratching or flattening the surface. "Soft jaws" or paper wraps will prevent any such damage.

Frozen bearings can be loosened with a fine "cutting oil". If allowed to run into a shaft bearing that is binding the oil will free it sufficiently to permit removal. A fine cut on the lathe will prevent a recurrence. When spare changer motors are available it is often easier and cheaper to replace the entire motor.

"Hunting", a condition characterised by a humming sound which varies in intensity at a low frequency, is sometimes the result of misalignment of shafts. It is due to the rotor seeking to synchronize its rotation with the power line frequency so that a particular rotor pole passes between adjacent magnetic field poles during the zero instant of the 60 cycle current. Realignment of the shaft and the replacement of worn washers are general steps in remedying this condition.



AC motor is illustrated. Universal type has brushes and commutator to left of rotor.

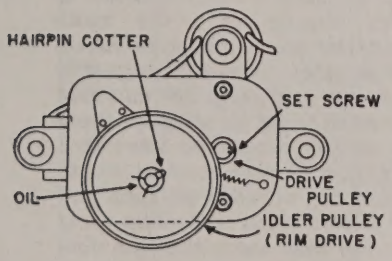
Overloading of a changer motor is the general result of some mechanical strain upon the motor through jamming of the changing mechanism or any other reason. Binding caused by foreign particles, jamming between moving parts, and pawls which stiffen on their bearings and don't engage other mechanisms can cause the kind of strains which stop the motor.

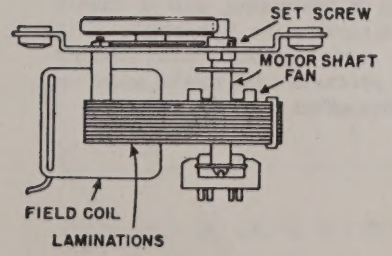
Investigating a Jam

When a changer is "jammed" never force the motion. Very frequently simply rotating the turntable in the opposite-to-normal direction can release a jam.

If a motor jams in a record changer and there is no immediate apparent reason, remove the motor from the rest of the mechanism. If it still doesn't turn over the fault is in the motor—if it works while out of its environment, there is a mechanical fault in the changer.

A condition which can be confused with "hunting" is the turntable rumble due to irregularities in the





Rumble noise from flats on the idler pulley requires pulley replacement.

RECORD CHANGERS
Simplified Repairing
Part II

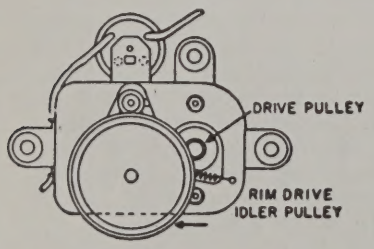
table drive. This is particularly true of rim-driven turntables. The rubber liner on the rim of the drive wheel develops a flat during periods of inoperation when the drive presses against the inside of the turntable rim. It is a simple matter to replace the distorted rubber rim bands with new ones readily obtainable at parts dealers who have replacement types for most changers.

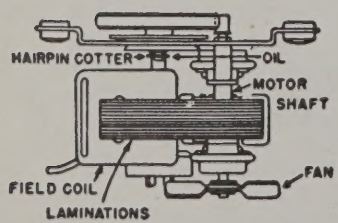
The Three Trouble Signs

In general, it might be said that there are three common-place indicators of trouble: The motor does not start; it runs abnormally warm; or, it exhibits one or several unusual operating noises. The chart at the right gives example of common causes of these troubles.

All that has been written above applies to AC, eddy current, induction and other type motors as well as to the universal motor, except where the physical structure would make the listed conditions inapplicable.

There are particular conditions in the universal motor that are frequently encountered. These stem from the brushes and the contact made to the commutator. The commutator itself will seldom require any maintenance unless physically damaged by abrasion or pitted





Loose field coil laminations are tightened by squeezing clamps.

MOTOR TYPE	TROUBLE SYMPTOM	CHECK THESE CAUSES: LOW LINE VOLTAGE	JAMMING OF CHANGER—LOAD TOO GREAT	SHORTED TURNS IN WINDING	FROZEN SHAFT BEARING	OPEN FIELD COIL	WORN BRUSHES, POOR CONTACTS	WRONG CURRENT	AC MOTOR SETTING, OPERATED ON DC	DIRT IN GEAR TRAIN	LOOSE THRUST BEARING	ROTOR NOT CENTERED	POOR MOUNTING	LOOSE LAMINATIONS OR WINDING	EXCESS ROTOR END PLAY	BENT SHAFT	LOOSE GEARS OR DRIVES	PITTED COMMUTATOR	WORN OR BROKEN TOOTHED GEARS	DC MOTOR ON AC CURRENT
D-C	FAILURE TO START	•	•	•	•	•	•													•	•
	OVER-HEATING		•	•																	
	MECHANICAL NOISE									•	•	•								•	
A-C	FAILURE TO START	•	•	•	•	•															
	OVER-HEATING		•	•																	
	MECHANICAL NOISE									•		•	•	•	•	•	•			•	
UNIVERSAL	FAILURE TO START	•	•		•	•	•	•												•	
	OVER-HEATING		•	•					•												
	MECHANICAL NOISE									•		•	•	•	•	•	•	•	•	•	

Check list of faults that cause basic types of trouble in AC, DC and Universal motors.

from poor brush contact which causes arcing. If badly cut up the commutator can be cleaned with very fine sandpaper (never emery) while turning in the lathe or drill press.

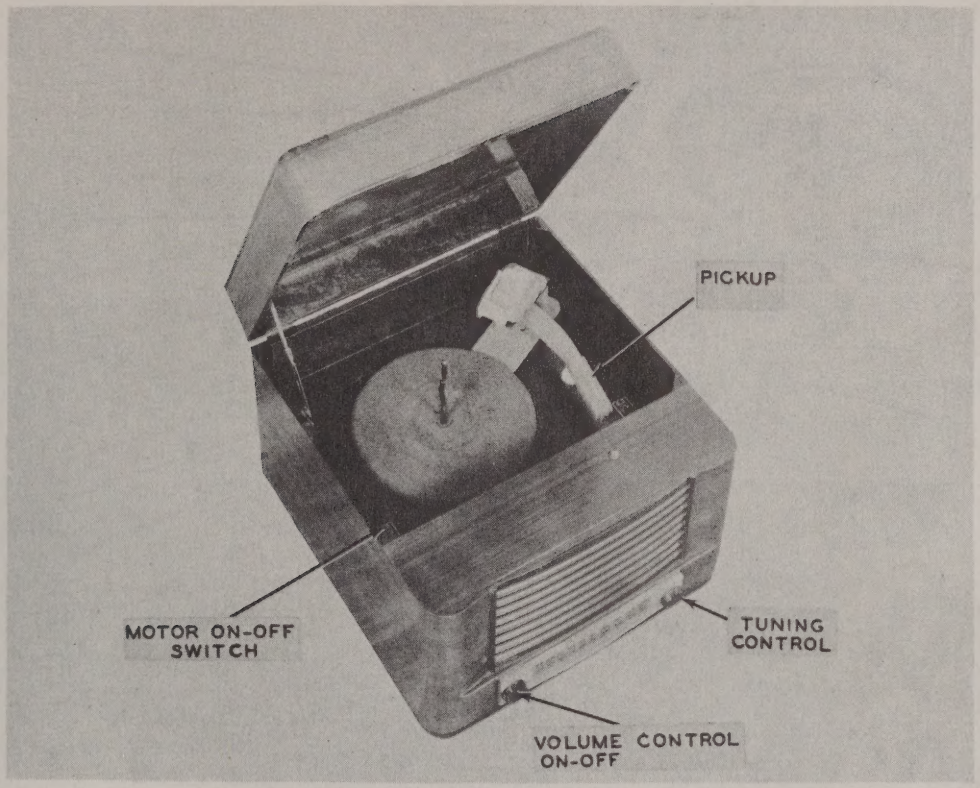
Brushes can become worn and require replacement. In replacing brushes they must be contoured to fit the commutator. This is done by placing fine sandpaper strips around the commutator and oscillating it by hand back and forth under the brushes in place in the brush holders with the normal spring pressure applied. The brushes must be properly bedded if freedom from sparking is to be obtained.

A quick test for good brush contact is made on the lowest resistance scale of an ohmmeter. Disconnect the motor from the power line and connect the ohmmeter across the motor leads. Good brush contacts will be indicated when there is no variation in the meter reading as the armature is rotated. Poor contacts will be indicated when the ohmmeter needle moves erratically.

The general care of motors requires that all moving parts be oiled periodically with a good grade of machine oil. SAE No. 10 is suggested. In cases where the motor is located directly over the radio chassis, the use of oil is definitely an error, since a constant drip into the chassis and radio set mounted underneath is apt to occur. In these cases motors should be lubricated with grease. Grease remains where it is placed, whereas oil runs out.

In motors with reduction gear trains the gear assemblies are normally operated in grease. A good soft grease is preferable, and it should be changed when it becomes dirty from contamination with metallic wear products that might leave an abrasive effect.

ADMIRAL
CHASSIS 5B1 PHONO



ADMIRAL
CHASSIS 5B1 PHONO

ADMIRAL CHASSIS 5B1

TRADE NAME	Admiral Chassis 5B1 (Model 6RT43)
MANUFACTURER	Admiral Corp., 3800 Cortland St., Chicago 47, Ill.
TYPE SET	AC Comb. Superheterodyne Radio & Auto Phono. - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC RATING .240 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1630KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Check setting of dial pointer extremes as shown on dial diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250 MMFD	High side to ant. stator section of tuning gang. Low side to b-.	455KC	High freq. end of dial.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer or connect isolating capacitor in series with low lead to B-.
"	"	1630KC	"	"	A5	"
	Loop	1400KC	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. With chassis and loop mounted in cabinet connect output of signal generator to loop of few turns and radiate signal into receiver loop. Remove plug button on top to gain access to A6.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	67A8	TN129	DSB-40+30+20+150	TA-330	PRSA150-40-40	EZ42215	Filter - Red
B	30	150							" - Yellow
C	20	150				UT-201	PRS150-20		" - Blue
6A	50	150	67A3	2N520	M-50+30-150	TA-530	PRS150-40-40	BRL3515	Filter *
B	30	150							"
7	.05	400	64B1-22	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
8	.2	400	64A2-1	TP429	S-4-2	TC-2	484-.2	DT4P2	Phono Coupling
9	.2	400	64A2-1	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
10	.02	400	64B1-24	TP423	S-4-02	TC-12	484-.02	DT4S2	50L6 Plate Bypass
11	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
12	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
13	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	Tone Compensation
14	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
15	.02	400	64B1-24	TP423	S-4-02	TC-12	484-.02	DT4S2	Osc. Tuned Circuit
16	.1	200	64B1-30	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
17	.005	600	64B1-12	TP408	S-6-005	TC-25	684-.005	DT6D5	Ant. Coupling
18	35	500	65B6-10						Hum Neutralizer †
19	500	500	65B7-27	MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
20	250	500	65B7-22	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Diode
21	50	500	65B7-11	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cap.
22	20	500	65B5-5			MS-42			Fixed Trimmer

*Used in earlier models.
†Not used in all models.

CONTROLS

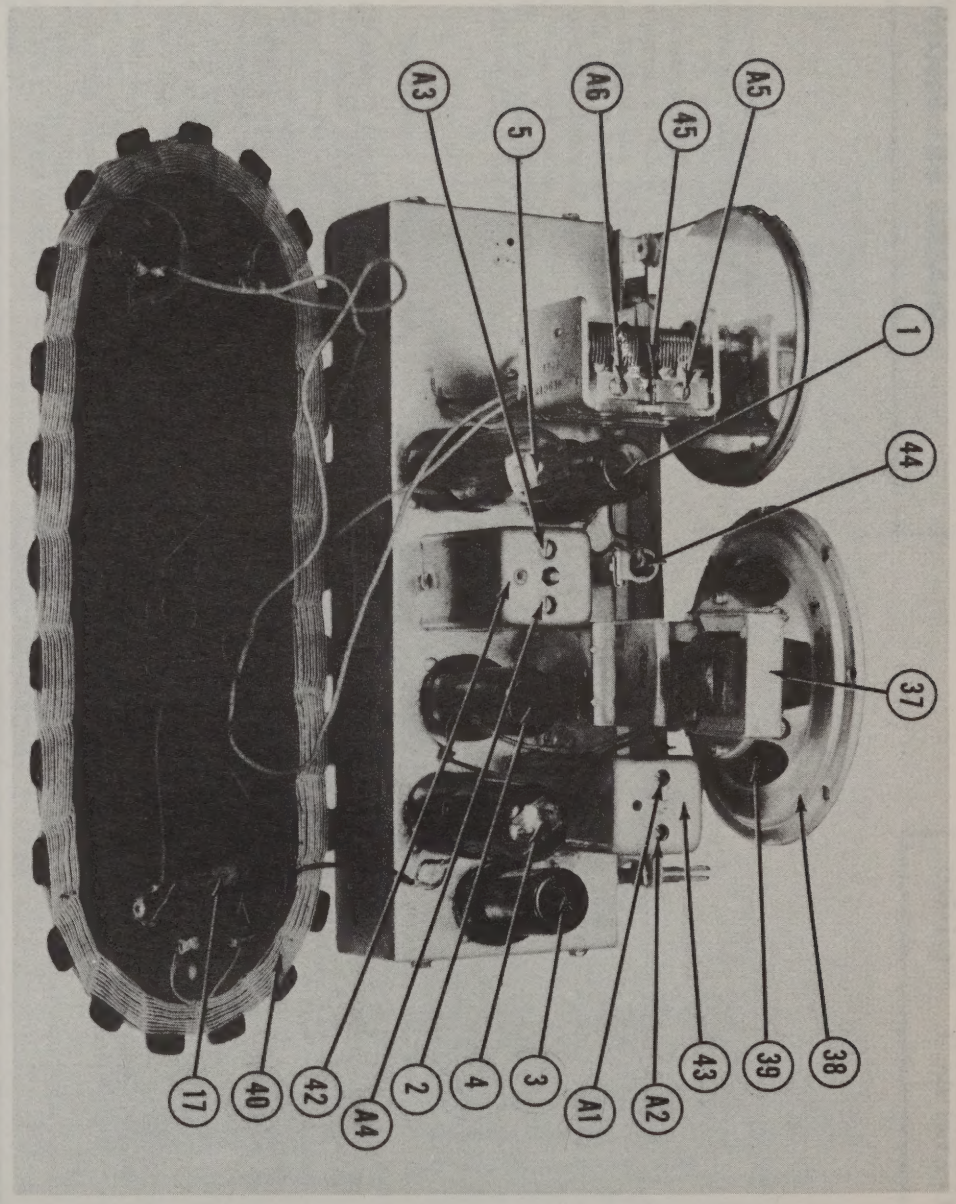
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	75B3-2	DTM283	D18-133XX	AT-92	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
24	22KΩ	½	60B8-223	BTS-22K	Red-Red-Or. Osc. Grid
25	1 Meg.	½	60B8-105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	47KΩ	½	60B8-473	BTS-47K	Yl.-Vi.-Or. Tone Compensation
27	27KΩ	½	60B8-273	BTS-27K	Red-Vi.-Or. " "
28	10 Meg.	½	60B8-106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
29	220KΩ	½	60B8-224	BTS-220K	Red-Red-Yl. 1st AF Plate Load
30	470KΩ	½	60B8-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
31	150Ω	½	60B8-161	BW-½-150	Br.-Grn.-Br. Output Cathode
32	150KΩ	½	60B8-154	BTS-150K	Br.-Grn.-Yl. Line Isolating
33	150Ω	1	60B28-1	BW-1-150	Br.-Grn.-Br. Filter
34	1000Ω	1	60B28-2	BTA-1000	Br.-Blk.-Red Filter
35	33Ω	1	60B28-3	BW-½-33	Or.-Or.-Blk. Surge Limiter-See Note 1

Note 1-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000~	REPLACEMENT DATA: ADMIRAL PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
36	67MA	319Ω	3.6H	74A1*	C-1711	T-14C63	*Used in earlier production

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
37	3000Ω	5.3Ω	285Ω	1.2Ω		A-3876‡	T-13S39‡		‡Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
38	PM	5.3Ω	78B4-3	ST-105		
	CONE DIA.	VC DIA.				
39	4-3/4"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
40A	Loop Ant.	0Ω	1.3Ω	69B6		Used on model 6RT41
40B	Loop Ant.	0Ω	1.3Ω	69B10		" " models 6RT42, 6RT43
41	Osc. Coil		.5Ω	69A5	14-1040	
42	Input IF	18Ω	18Ω	72B3	16-6658	
43	Output IF	21Ω	22Ω	72B4	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: ADMIRAL PART No.		INSTALLATION NOTES
44	Bayonet	6-8	0.15	Brown	81A1-8		Type 47

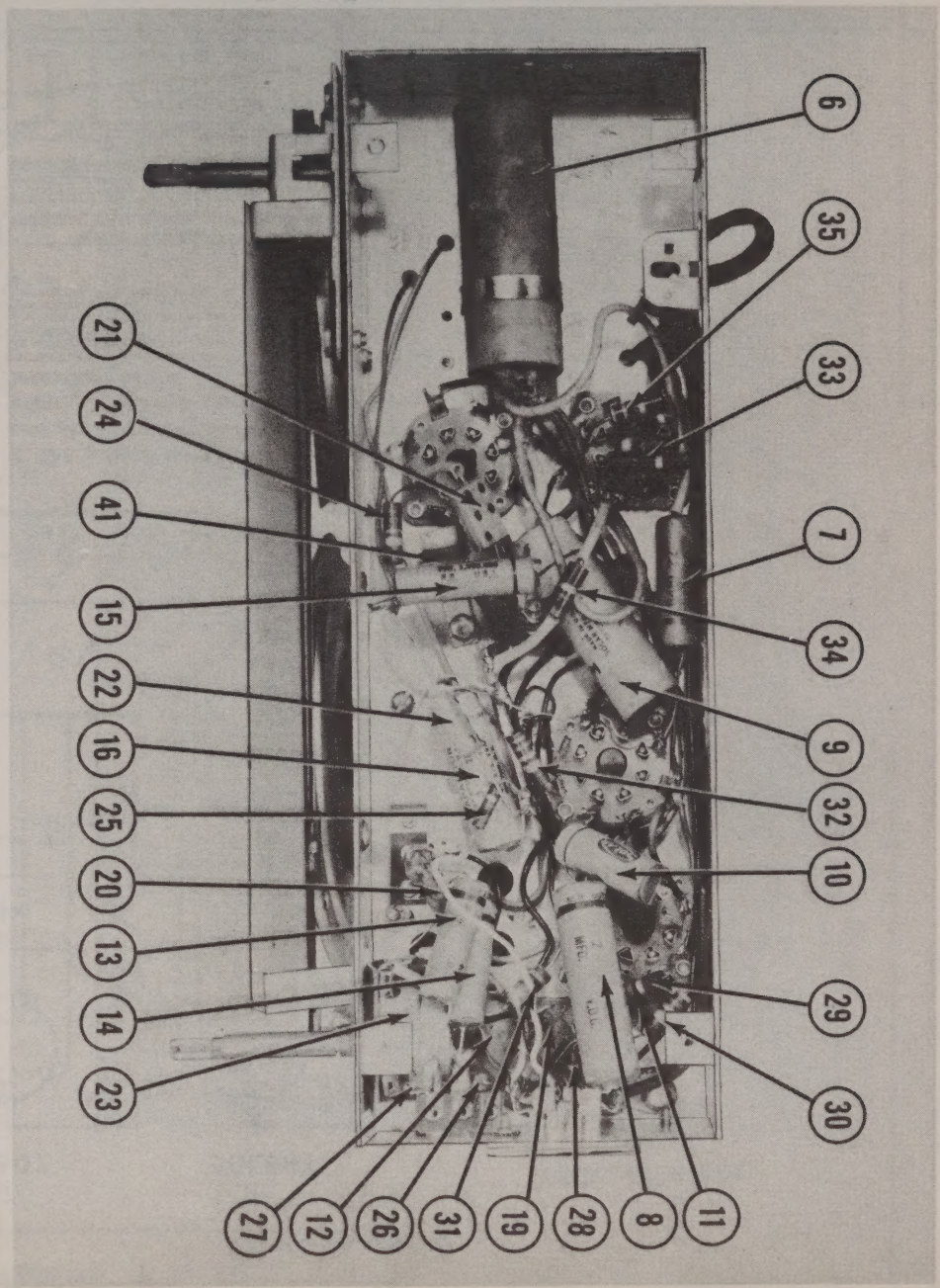
MISCELLANEOUS

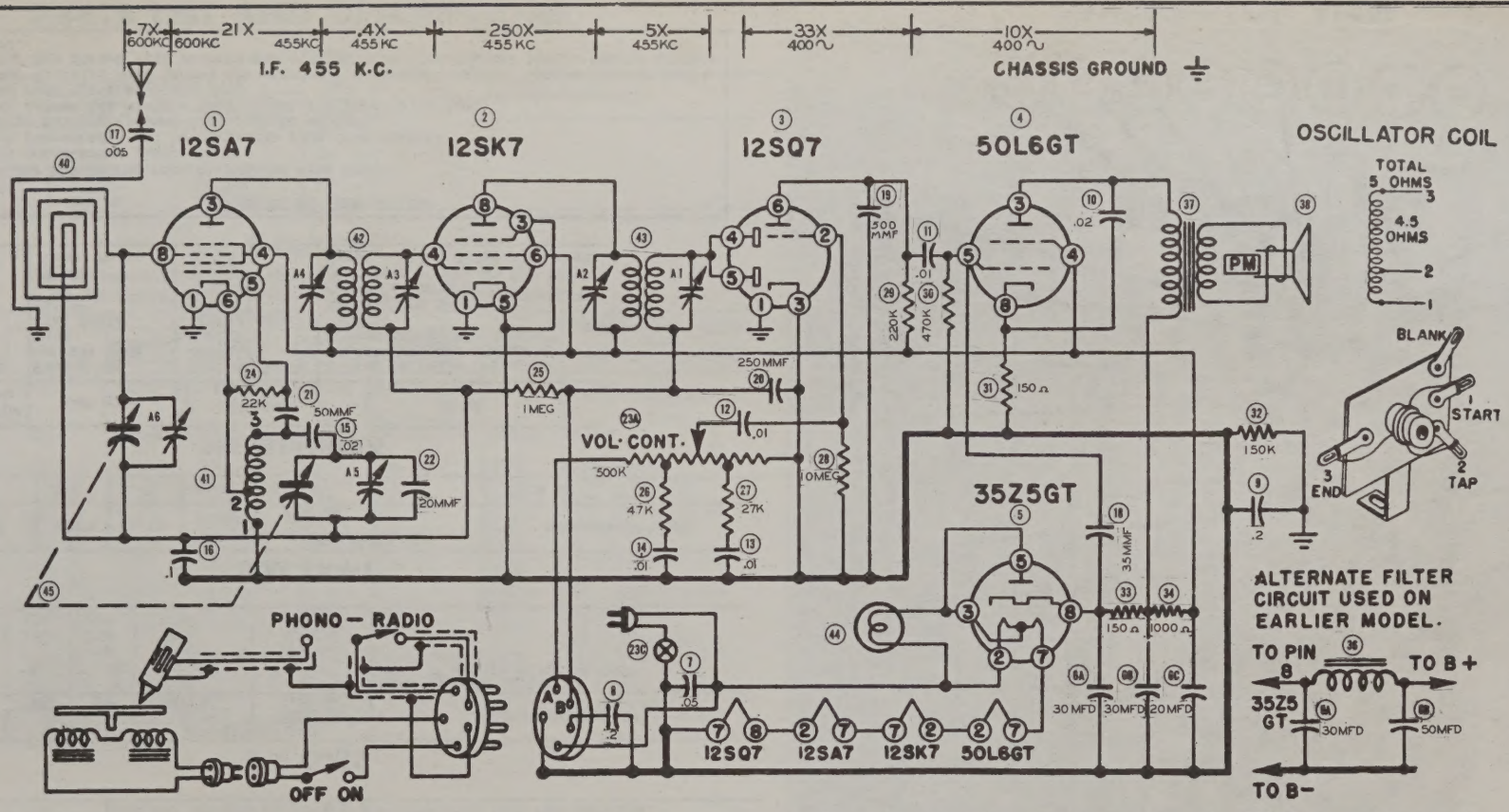
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
45	Tuning Cap.	68A2 or P4975	2 Gang Variable Cap.
	Cabinet Body	34D2-11	Mahogany (Model 6RT41)
	Knob	33A1-2	Walnut-Mahogany
	Dial Scale	21B4-1	Plastic
	Switch	77B1-11	Radio-Phono SPDT
	"	77B1-44	Motor Off-on SPST
	Crystal	409A1	Cartridge
	Phono. Motor	407B3	Types 407B1 & 407B2 also used

DISASSEMBLY INSTRUCTIONS

1 - Remove volume and tuning control push-on type knobs.
2 - Disconnect phono-motor plug.
3 - Disconnect phono-radio and phono-pickup plug from chassis.
4 - Remove clips holding antenna loop lead to cabinet.
5 - Remove two screws and washers holding antenna loop to cabinet.
6 - Remove two wood spacers.
7 - Remove four Phillips head screws and washers from chassis board. Remove chassis board.
8 - Remove four Hex screws with washers and lock washers from chassis board. Remove chassis from board.

CHASSIS—BOTTOM VIEW





NOTE: 1. In later production (33) and (6A) are disconnected from pin No. 8 of the 35Z5 and a 33-ohm 1-watt resistor ((35)) is connected between pin No. 8 and the junction of (33) and (6A). In these sets, condenser (18) was deleted.

2. The jumper between pins 4 and 5 on the 12SQ7 is removed and one pin is connected to the secondary of the second I.F. ((40)) and the other pin is connected directly to the junction point of (25) and the secondary of the 1st I.F. ((42)).

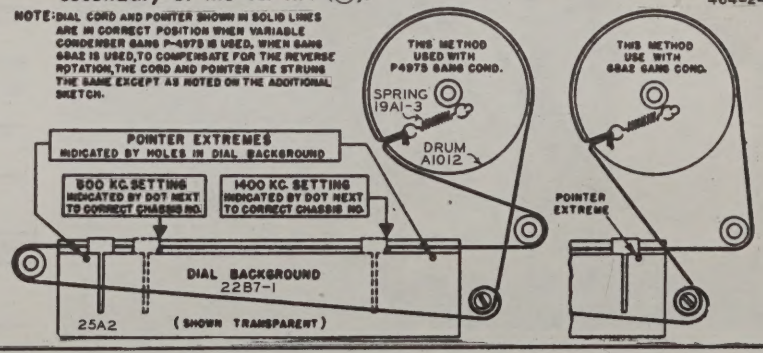
NOTE: VOLT. & RES. TAKEN WITH JUMPER ACROSS YELLOW AND ORANGE ON PHONO PLUG.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	13.5 V.AC	81 V.DC	81 V. DC	-3.8 V.DC	0V.	25.8 V.AC	-.45 V.DC
2	12SK7	0V.	37.1 V.AC	0V.	-.47 V.DC	0V.	81 V. DC	25.8 V.AC	81 V. DC
3	12SQ7	0V.	-.6V. DC	0V.	-.42 V.DC	-.47 V.DC	57 V. DC	0V.	13.5 V.AC
4	50L6GT	0V.	37.1 V.AC	97V. DC	81 V. DC	0V.	0V.	87 V.AC	5.3 V.DC
5	35Z5GT	0V.	117 V.AC	113 V.AC	115 V. DC	113 V.AC	107 V.DC	87 V.AC	117 V. DC

RESISTANCE READINGS

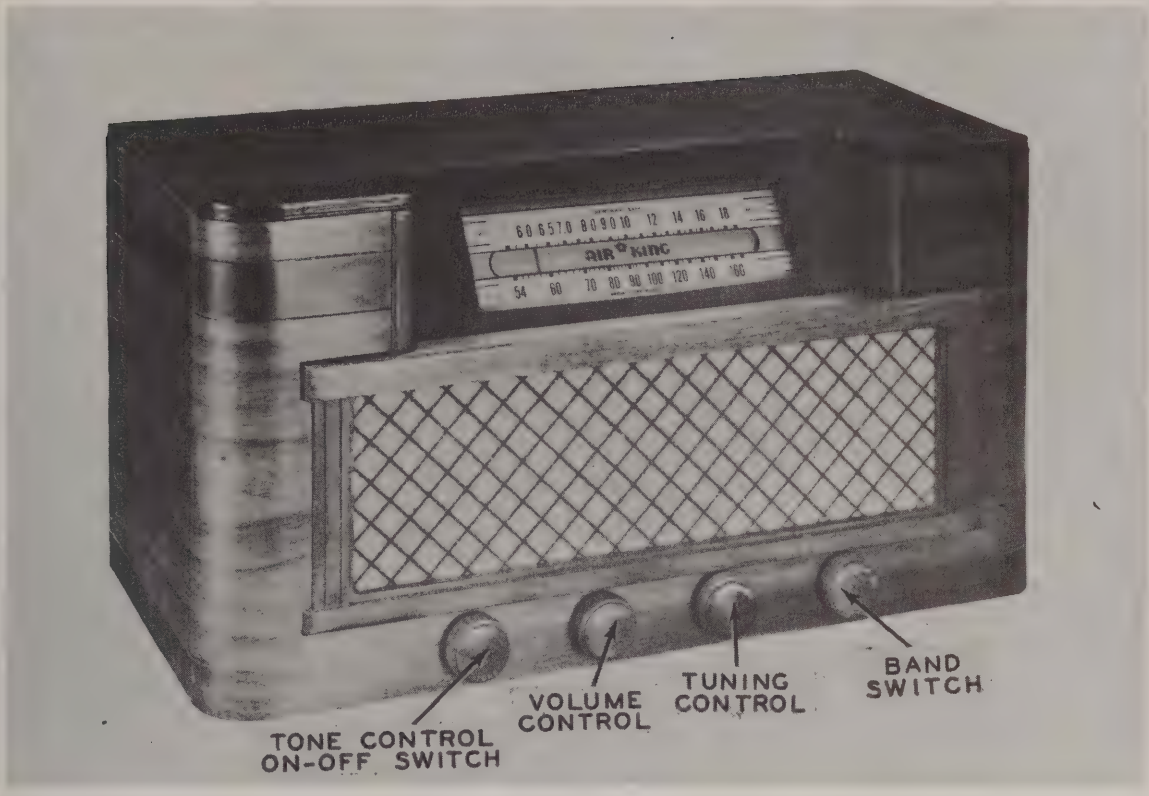
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	140 KΩ	12.5 Ω	25 KΩ	25 K Ω	22.5 KΩ	.5 Ω	25.5 Ω	1.4 MEG
2	12SK7	140 KΩ	37 Ω	0 Ω	1.4 MEG	0 Ω	25 KΩ	25.5 Ω	25 KΩ
3	12SQ7	140 KΩ	10 MEG	0 Ω	510 KΩ	1.4 MEG	280 KΩ	0 Ω	12.5 Ω
4	50L6GT	140 KΩ	37 Ω	25 KΩ	25 KΩ	480 KΩ	1 NF	87 Ω	150 Ω
5	35Z5GT	1 NF	110 Ω	108 Ω	25 KΩ	108 Ω	25 KΩ	87 Ω	25 KΩ


464-24
NOTE: DIAL CORD AND POINTER SHOWN IN SOLID LINES ARE IN CORRECT POSITION WHEN VARIABLE CONDENSER GANG P-4975 IS USED. WHEN GANG 6BA2 IS USED, TO COMPENSATE FOR THE REVERSE ROTATION, THE CORD AND POINTER ARE STRUNG THE SAME EXCEPT AS NOTED ON THE ADDITIONAL SKETCH.
THIS METHOD USED WITH P4975 GANG COND.
SPRING 19A1-3
DRUM A1012
THIS METHOD USE WITH 6BA2 GANG COND.
POINTER EXTREMES
INDICATED BY HOLES IN DIAL BACKGROUND
600 KC SETTING INDICATED BY DOT NEXT TO CORRECT CHASSIS NO.
1400 KC SETTING INDICATED BY DOT NEXT TO CORRECT CHASSIS NO.
POINTER EXTREME
DIAL BACKGROUND 22B7-1
25A2
(SHOWN TRANSPARENT)

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIR-KING
MODEL 4604



AIR-KING
MODEL 4604

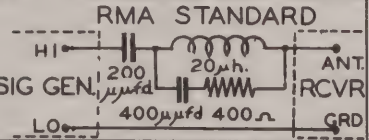
AIR-KING MODEL 4604

TRADE NAME	Air-King Model 4604
MANUFACTURER	Air-King Products Co., Inc., 1523-29 63rd St., Brooklyn, N.Y.
TYPE SET	AC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 7H7 Mixer, 7A4 Oscillator, 6SK7GT IF Amp., 7B6 Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .430 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC SHORT WAVE 6-18MC

ALIGNMENT INSTRUCTIONS

Tone control in high position. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #6 (grid) of 7H7. Low side to chassis.	455KC	BC	540KC	Across voice coil	A1,A2, A3,A4, A5.	Adjust for maximum output.
	Loop	1500KC	"	1500KC	"	A6, A7	Adjust for maximum output. Connect output of signal generator to loop of few turns and radiate signal into receiver loop.
	"	600KC	"	600KC	"	A8	Rock gang and adjust for maximum output.
	"	1500KC	"	1500KC	"	A5	Adjust for maximum output.
RMA standard	High side to ant. post. Low side to chassis.	18MC	SW	18MC	"	A9	Adjust for maximum output. If two peaks can be obtained use one with trimmer screw further out.
"	"	16MC	"	16MC	"	A10	Adjust for maximum output.



HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIR-KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	7H7	7H7	8V	
2	Oscillator	7A4	7A4	5AC	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR-KING PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	350	20102	TC75	M-20-450	UT-20	PRS450-20	BR2045	Filter - Red
B	16	350		2S569	DHS-2x16-450	TU-1616	PRV450-16-16	EZ5116	" - Blue
C	16	350							" - Green
8	25	25	20105	TC26	M-25-25	TA-25	PRS25-25	BR252A	Cath. Bypass
9	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	Line Bypass
10	.02	400		TP423	S-4-02	TC-12	484-.02	DT4S2	" "
11	.01	1000		TP434	S-10-01	TR-11	1084-.01	MD16S1	6V6 Plate Bypass
12	.01	400		TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
13	.005	600		TP408	S-6-005	TC-25	684-.005	DT6D5	Tone Control
14	.002	600		TP405	S-6-002	TC-22	684-.002	DT6D2	Audio Coupling
15	.02	400		TP423	S-4-02	TC-12	484-.02	DT4S2	RF Bypass Pwr. Supp.
16	.1	400		TP421	S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
17	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	7A4 Plate Bypass
18	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	Cath. Coupling
19	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
20	250	500		MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
21	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Vol. Cont.
22	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Diode
23	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Osc. Grid Cap.
24	3000	500		MC461	M0.5-23	1FM-23	1467-.003	1W5D3	Fixed Padder

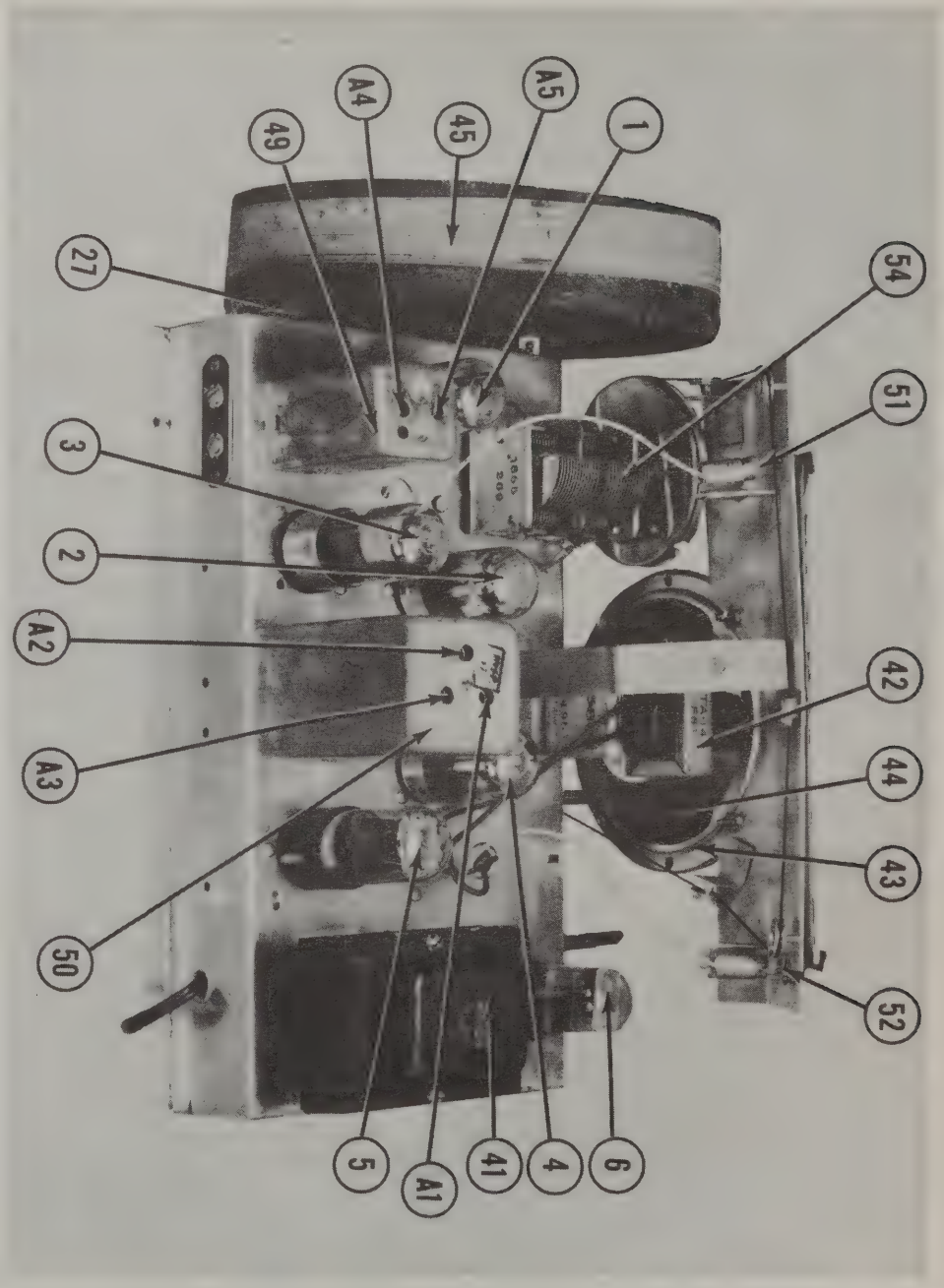
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR-KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	2470	MR48		M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.		Not Req.	Attach to 25A per instructions
26A	250KΩ	1	2521	MR44	D11-130	M-55-S	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 26A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR-KING PART No.	IRC PART No.	IDENTIFICATION CODES
27	1000Ω	½		BTS-1000	Br.-Blk.-Red Ant. Loading
28	2200Ω	½		BTS-2200	Red-Red-Red Mixer Cathode
29	47Ω	½		BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor
30	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
31	10KΩ	½		BTS-10K	Br.-Blk.-Or. Osc. Plate Load
32	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Screen Dropping
33	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
34	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode Load
35	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-blue 1st AF Grid
36	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
37	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
38	300Ω	1		BW-1-270	Or.-Blk.-Br. Output Cathode
39	1500Ω	1		BTA-1500	Br.-Grn.-Red Filter
40	390Ω	1		BW-1-390	Or.-White-Br. Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIR KING PART No.	STANCOR PART No.	THORDASON PART No.	
41	117VAC @ .450A	200-200 @ .057A	6.4VAC @ 2.5A		1089	P-6119*	T-13R11*	*Drill new mounting holes

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	AIR KING PART No.	STANCOR PART No.	THORDAR'N PART No.		
42	3700Ω	3.05Ω	230Ω	.6Ω	Part of 5866	A-3856†	T-13S39†		†Bend mounting tabs down and file out slots. Mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	AIR KING PART No.	JENSEN PART No.		
43	PM	3.05Ω	5866	ST-105		
	CONE DIA.	VC DIA.				
44	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR KING PART No.	MEISSNER PART No.	
45	Loop Ant.	.2Ω	1.2Ω	28135		
46	SW Ant. Coil	.3Ω	0Ω	28137	14-1044	
47	BC Osc. "	5.8Ω		28136	14-1040	
48	SW " "	0Ω		28138	14-1046	
49	Input IF	16Ω	19Ω	3323	16-6658	
50	Output IF	21.5Ω	23.8Ω	3523		

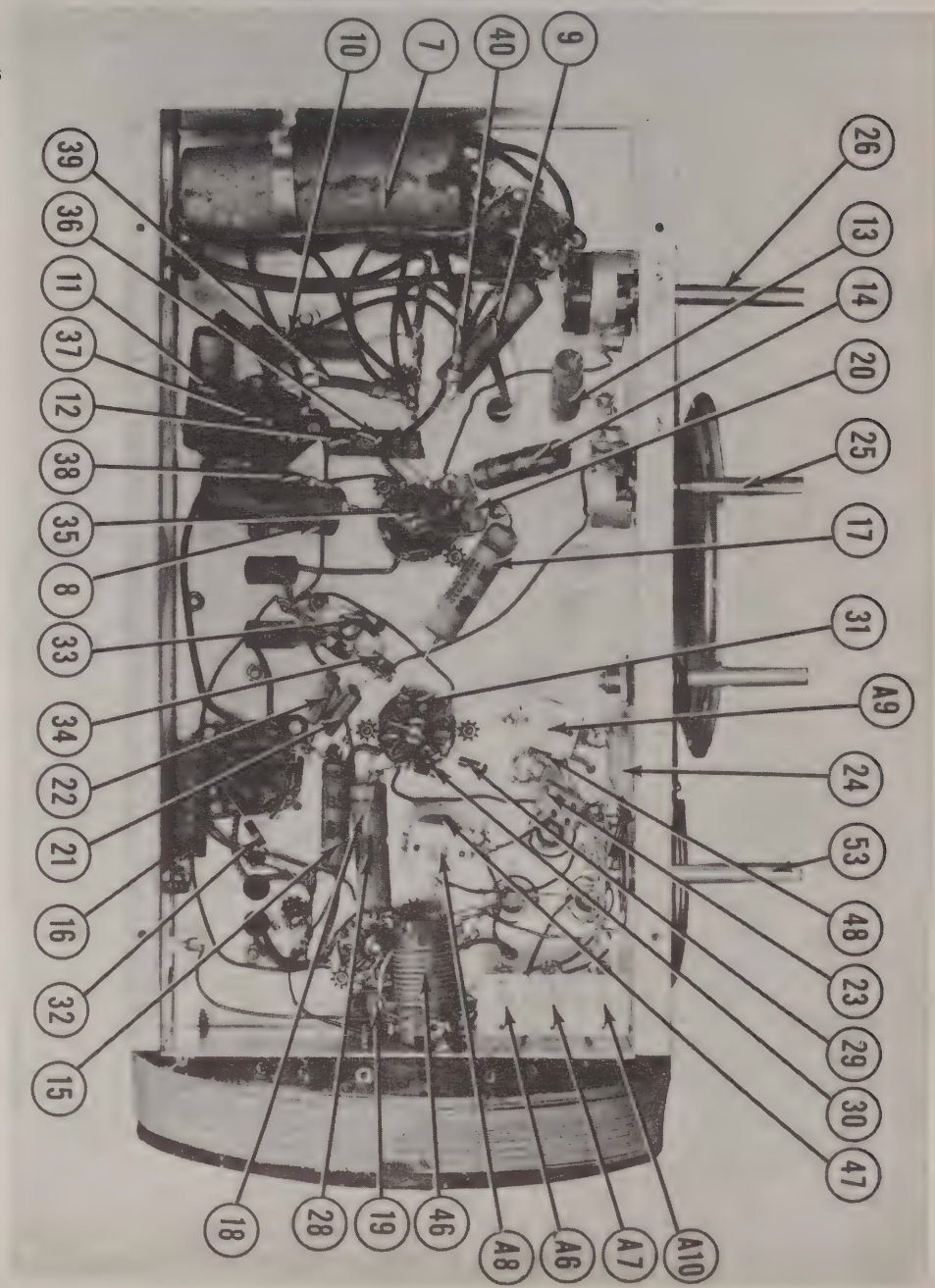
DIAL LIGHT

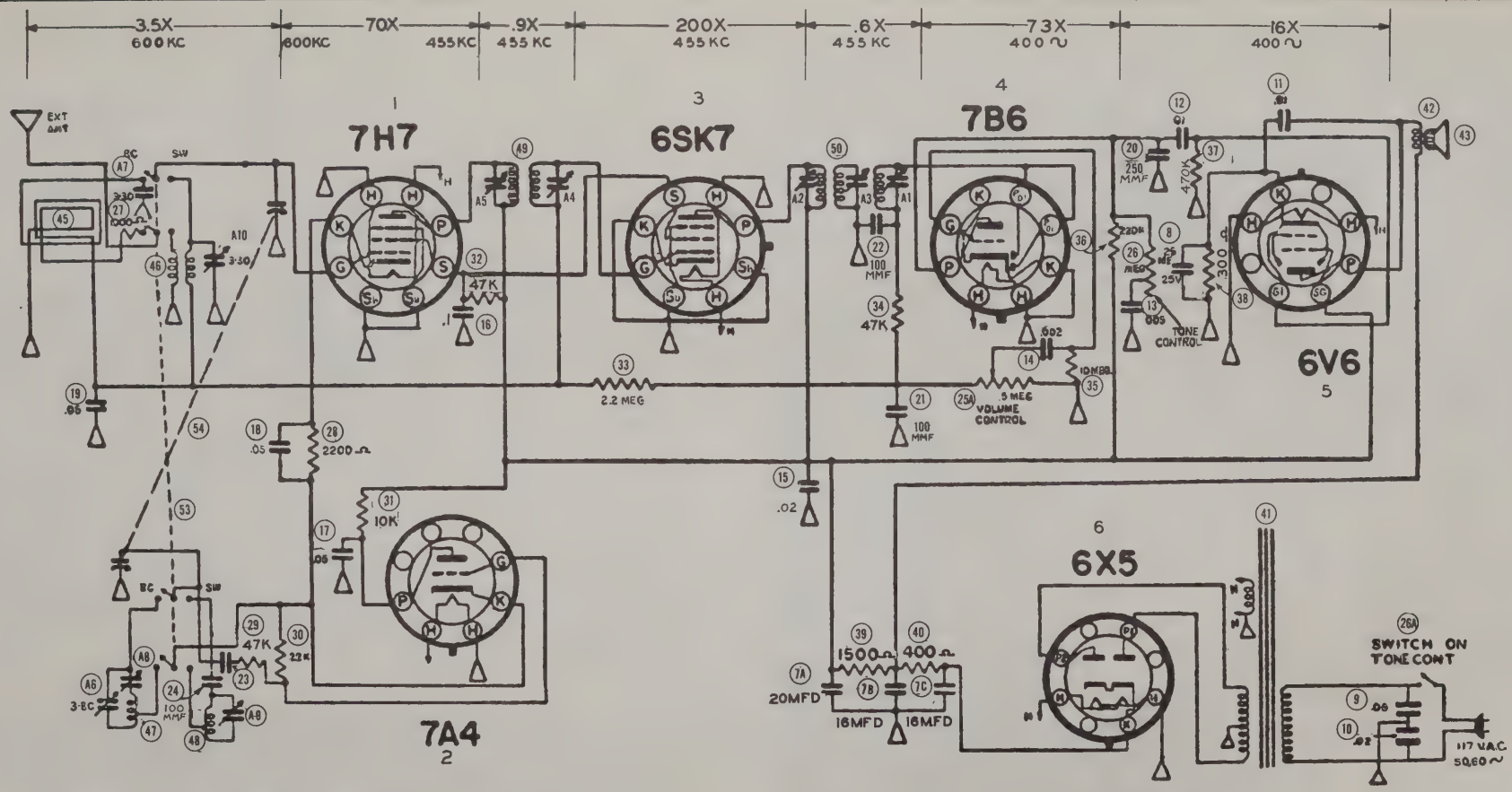
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR-KING PART No.		
51	Bayonet	6-8	0.15	Brown	4911		Type 47
52	"	6-8	0.15	Brown	4911		" "

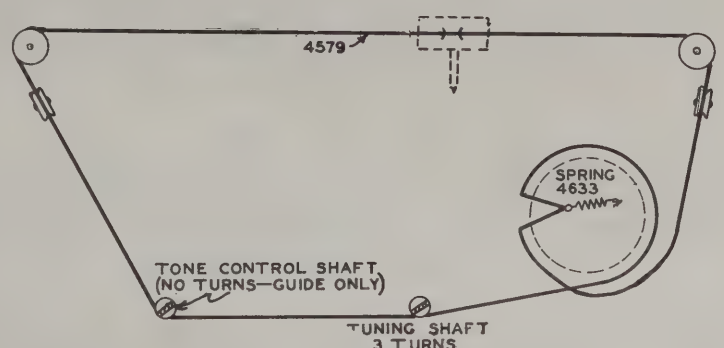
MISCELLANEOUS

ITEM No.	PART NAME	AIR-KING PART No.	NOTES
53	Band Switch	3784	
54	Tuning Cap.	1655	2 Gang Variable Cap.
	Cabinet	457	
	Dial Scale	40109	
	Dial Pointer	4140	
	Knob	39138	Tone, On-Off
	"	39139	Band Switch
	"	39140	Tuning
	"	39141	Volume

CHASSIS—BOTTOM VIEW







DIAL CORD DRIVE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	6.5V.AC	203V.DC	78V.DC	0V.	0V.	0V.	3.9V.DC	0V.
2	7A4	0V	78V DC	0V.	203V.DC	0V.	-22V.DC	0V.	6.5V.AC
3	6SK7GT	0V.	0V.	0V.	0V.	0V.	79V.DC	6.5V.AC	198V.DC
4	7B6	6.5V.AC	102V.DC	-4V. DC	0V.	-.6V. DC	-.6V. DC	0V.	0V.
5	6V6GT	0V.	0V.	230V DC	203V.DC	0V.	0V.	6.5V.AC	10.7V. DC
6	6X5GT	0V.	0V.	245V.AC	0V.	245V.AC	0V.	6.5V.AC	255V.DC

464-25

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	0Ω	235KΩ	280KΩ	0Ω	0Ω	2.3MEG	1900Ω	0Ω
2	7A4	0Ω	220KΩ	INF	220KΩ	INF	19.5Ω	.5Ω	0Ω
3	6SK7GT	0Ω	0Ω	0Ω	2.3MEG	0Ω	280KΩ	0Ω	235KΩ
4	7B6	0Ω	530KΩ	7.5MEG	0Ω	550KΩ	550KΩ	INF	0Ω
5	6V6GT	0Ω	0Ω	235KΩ	235KΩ	500KΩ	INF	0Ω	270Ω
6	6X5GT	0Ω	0Ω	180Ω	INF	170Ω	INF	0Ω	235KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE
MODELS 54WG-1801A, 54WG-1801B,
64WG-1801C

AIRLINE
MODELS 54WG-1801A, 54WG-1801B,
64WG-1801C

AIRLINE MODEL 64WG-1801C

TRADE NAME	Airline Models 54WG-1801A, 54WG-1801B, 64WG-1801C
MANUFACTURER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING - .245 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7. Low side to B-.	455KC	Turn rotor full open,	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
"	"	1620KC	"	"	A5	"
50 MMFD	High side to ext. ant. clip. Low side to chassis.	1400KC	Tune in 1400 KC. Set pointer at 1400KC mark.	"	A6	Adjust for maximum output. This adjustment made with chassis and back in cabinet.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	45X341	2N521	DHN-2x50-150	TA-530	PRS150-40-40	EZ5515	Filter - Red
B	50	150							" - Blue
7	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Filter
8	.2	200	B67204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
9	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	50L6 Plate Bypass
10	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
11	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
12	.05	200	B66503	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
13	.001	400	D66102	TP404	S-6-001	TC-21	484-.001	DT6D1	Ant. Coupling
14	270	500	47X445	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
15A	50	300	47X112	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Diode Filter
B	50	300		MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	" "
16	47	500	47X446	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	36X340	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

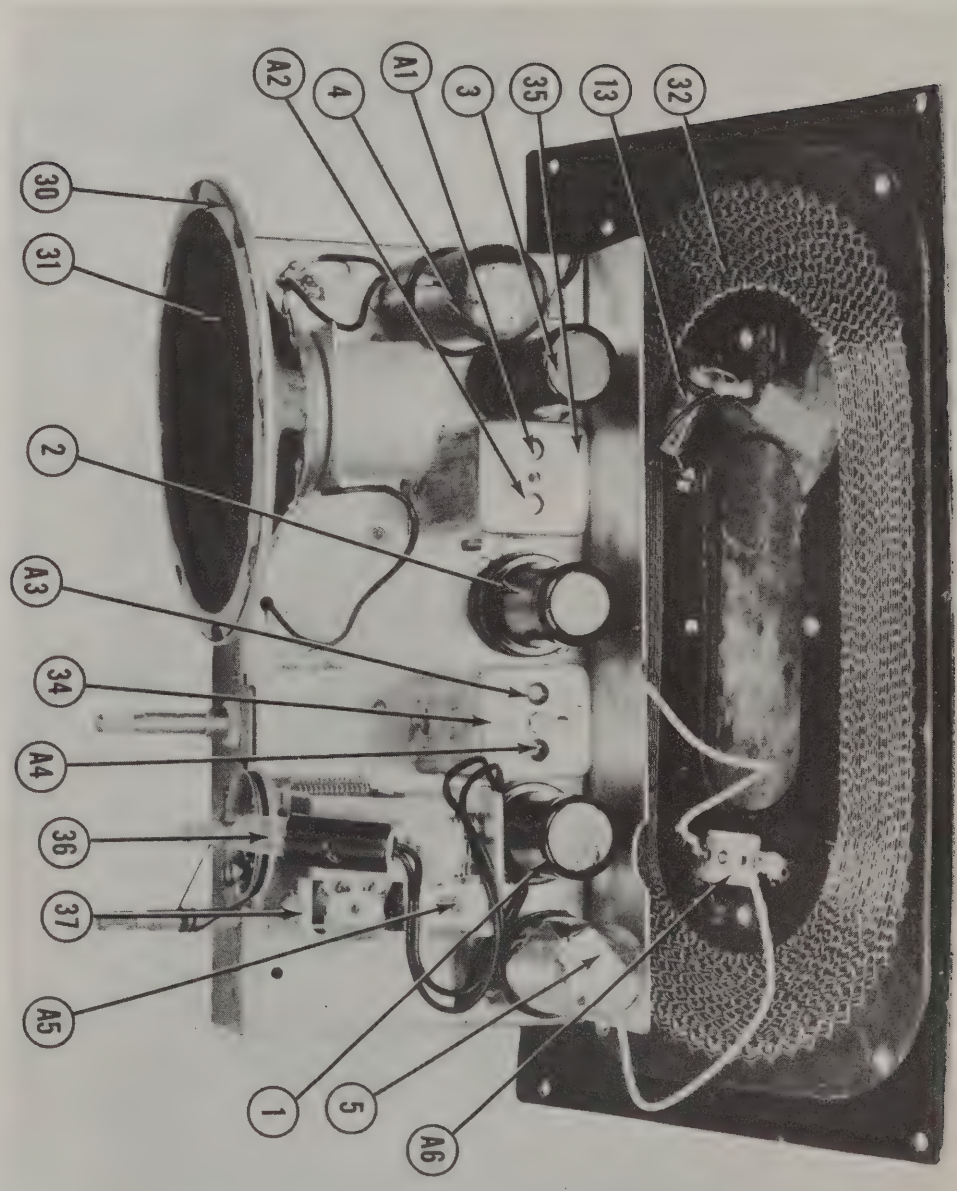
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
18	39KΩ	½	B84393	BTS-39K	Or.-white-Or. Osc. Grid
19	2.2 Meg.	½	B85225	BTS-2.2 Meg	Red-Red-Grn. AVC Network
20	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode Load
21	6.8 Meg.	½	B85685	BTS-6.8 Meg	Blue-Gray-Grn. 1st AF Grid
22	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
23	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½	B83151	BW-½-150	Br.-Grn.-Br. Output Cathode
25	220KΩ	½	B85224	BTS-220K	Red-Red-Yl. Line Isolating
26	27Ω	½	B84270	BW-½-27	Red-Vi.-blk. Surge Limiter
27	1500Ω	1	C85152	BTA-1500	Br.-Grn.-Red Filter
28	33Ω	1	C85330	BW-1-33	Or.-Or.-Blk. Line Dropping†

†Used in model 64WG-1801C only.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
29	2700Ω	3.4Ω	200Ω	.62Ω	51A123	A-3876	T-14S82		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA AIRLINE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
30	PM	3.4Ω	12A429	ST-107*		*Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
31	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
32	Loop Ant.	.3Ω	1.3Ω	9A1734		
33	Osc. Coil	.5Ω	6Ω	9A1805	14-1040	
34	Input IF	22Ω	21.8Ω	9A1782	16-6658	
35	Output IF	25.3Ω	19.5Ω	9A1783	16-6660	

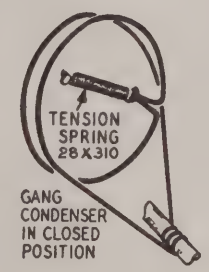
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA AIRLINE PART No.		INSTALLATION NOTES
36	Bayonet	6-8	0.15	Brown			Type 47

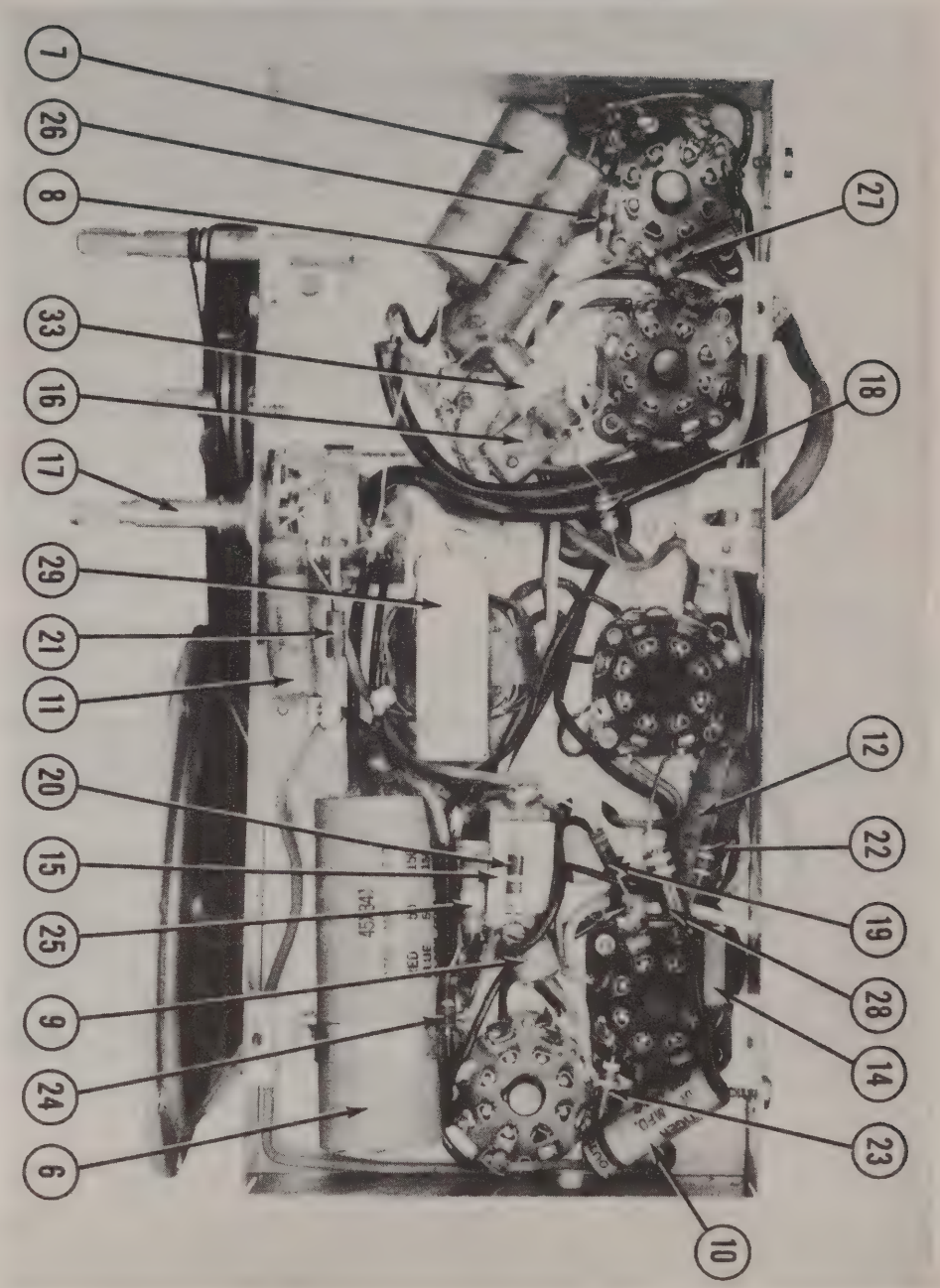
MISCELLANEOUS

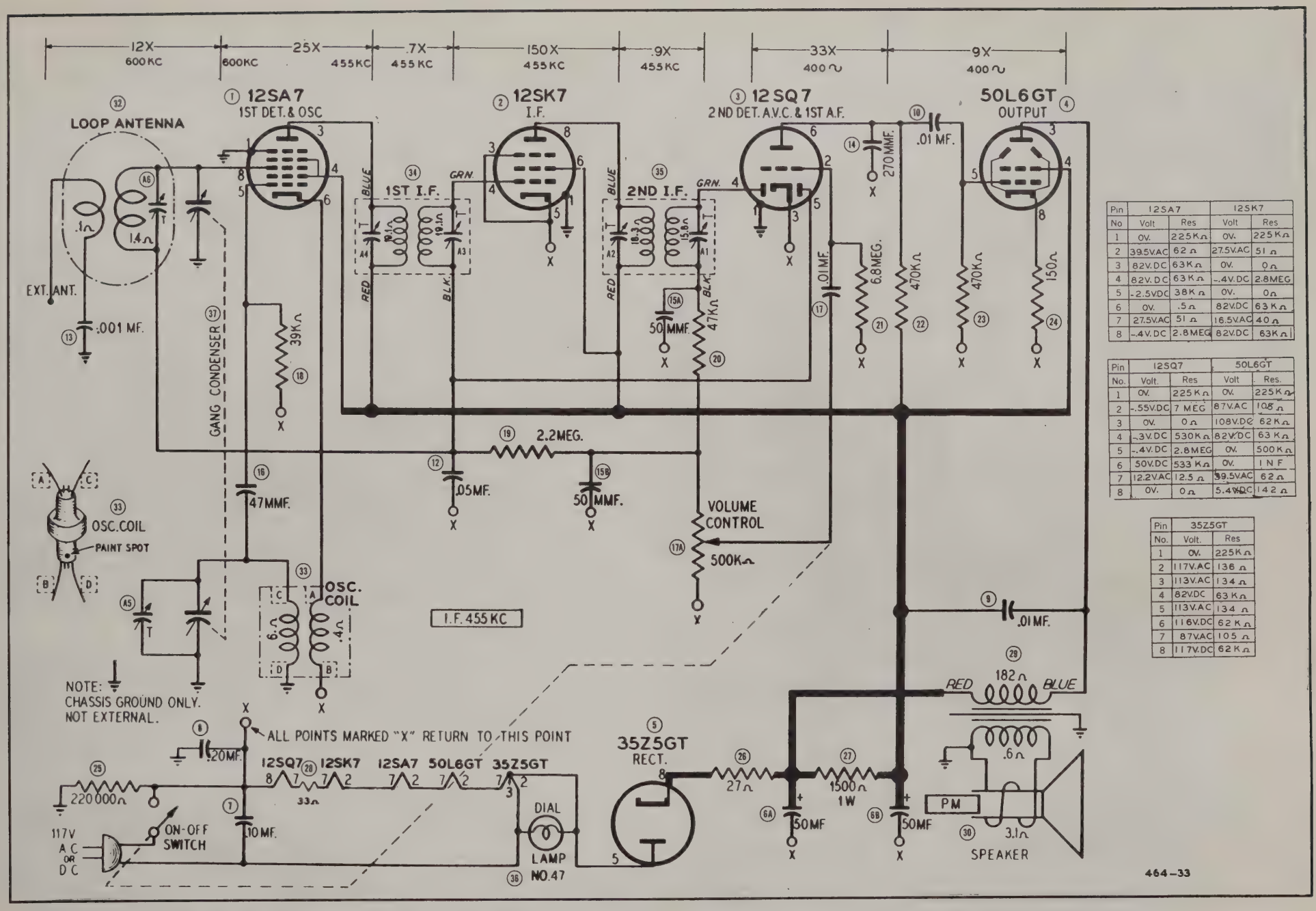
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
37	Tuning Cap.	14A176	2 Gang Variable Cap.
A6	Trimmer	17A116	Ant. Adj. 2.5-23 MMF
	Knob	10A297	Vol.-On-Off, Tuning
	Dial	58X585	
	Pointer	15X216	

DRIVE CORD DIAGRAM



CHASSIS—BOTTOM VIEW





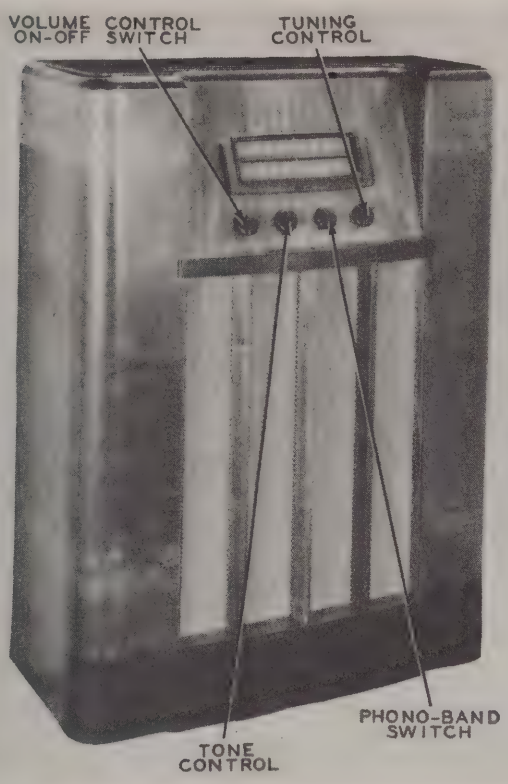
Pin No	12SA7 Volt	12SA7 Res	12SK7 Volt	12SK7 Res
1	0V.	225K Ω	0V.	225K Ω
2	39.5V.AC	62 Ω	27.5V.AC	51 Ω
3	82V.DC	63K Ω	0V.	0 Ω
4	82V.DC	63K Ω	-.4V.DC	2.8MEG
5	-2.5VDC	38K Ω	0V.	0 Ω
6	0V.	.5 Ω	82V.DC	63K Ω
7	27.5V.AC	51 Ω	16.5V.AC	40 Ω
8	-.4V.DC	2.8MEG	82V.DC	63K Ω

Pin No.	12SQ7 Volt.	12SQ7 Res	50L6GT Volt	50L6GT Res.
1	0V.	225K Ω	0V.	225K Ω
2	-.55V.DC	7 MEG	87V.AC	108 Ω
3	0V.	0 Ω	108V.DC	62K Ω
4	-.3V.DC	530K Ω	82V.DC	63 K Ω
5	-.4V.DC	2.8MEG	0V.	500K Ω
6	50V.DC	533 K Ω	0V.	I N F
7	12.2V.AC	12.5 Ω	99.5V.AC	62 Ω
8	0V.	0 Ω	5.4V.DC	142 Ω

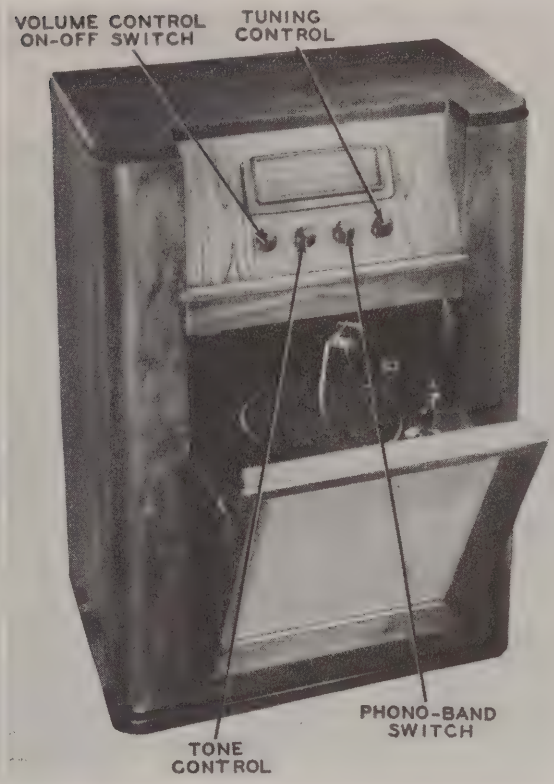
Pin No.	35Z5GT Volt.	35Z5GT Res
1	0V.	225K Ω
2	117V.AC	136 Ω
3	113V.AC	134 Ω
4	82V.DC	63 K Ω
5	113V.AC	134 Ω
6	116V.DC	62 K Ω
7	87V.AC	105 Ω
8	117V.DC	62 K Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIRLINE MODEL 54WG-2500A



AIRLINE MODEL 54WG-2700A

TRADE NAME Airline Models 54WG-2500A, 54WG-2700A
MANUFACTURER Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET AC Operated 2 Band Superheterodyne Radio - Self Contained Loop Antenna, Model 54WG-2700A has Automatic Phono.
TUBES (SEVEN) Types, 6SJ7 1st Det., 6J5 Oscillator, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY 105-125 Volts AC RATING .510 Amps. @ 117V AC
TUNING RANGE—BROADCAST 528-1600KC **SHORT WAVE** 5.75-18.3MC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading.—Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 6SJ7. Low side to chassis.	455KC	BC B Range	Turn rotor to full open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMFD	High side to ant. lead. Low side to chassis.	1600KC	"	"	"	A5	" " " "
"	"	1400KC	"	Tune in 1400 KC signal.	"	A6	" " " "
"	"	600KC	"	Tune in 600 KC signal.	"	A7	Rock rotor and adjust for maximum output. Repeat adjustments A5 at 1600KC and A7 at 600KC until there is no improvement in output.
400Ωres.	"	18.3MC	SW D Range	Turn rotor to full open	"	A8	Adjust for maximum output
"	"	17MC	"	Tune in 17MC signal.	"	A9	Rock rotor and adjust for maximum output.
100 MMFD	"	1400KC	BC B Range	Tune in 1400 KC signal.	"	A6	With chassis reassembled in cabinet adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

AIRLINE
MODEL 54 WG-2500A, 54 WG-2700A

AIRLINE
MODEL 54 WG-2500A, 54 WG-2700A

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st Det.	6SJ7	6SJ7	8N	
2	Osc.	6J5	6J5	6Q	
3	1st IF Amp.	6SK7	6SK7	8N	
4	2nd IF Amp.	6SK7	6SK7	8N	
5	Det.-AVC-AF	6SQ7	6SQ7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	40	400	45X277	TC78	M-40-450	UT-30	PRS450-40	BR4045	Filter - Red
B	20	450		TC75	M-20-450	UT-30	PRS450-20	BR2045	" - White
9	.003	400	D66203	TP406	S-6-003	TC-23	484-.003	DT6D3	6V6 Plate Bypass
10	.004	200	B66402	TP407	S-6-004	TC-24	484-.004	DT6D4	Tone Compensation
11	.25	200	B66254	TP430	S-4-25	TC-2	484-.25	DT4P25	Bias Filter
12	.02	400	D66203	TP423	S-4-02	TC-12	484-.02	DT4S2	Audio Coupling
13	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
14	.04	400	D66403	TP425	S-6-04	TC-14	484-.04	DT4S4	Screen Bypass
15	.04	400	D66403	TP425	S-6-04	TC-14	484-.04	DT4S4	6SJ7 Screen Bypass
16	.02	400	D66203	TP423	S-4-02	TC-12	484-.02	DT4S2	RF Bypass Pwr. Supp.
17	.05	200	B66503	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
18	.02	200	B66203	TP423	S-4-02	TC-12	484-.02	DT4S2	Osc. Feedback
19	.02	200	B66203	TP423	S-4-02	TC-12	484-.02	DT4S2	Cath. Coupling
20	.0005	500	D66501	TP403	S-6-0005	TC-35		DT6T5	RF Coupling
21	.00475	180	46X289						Fixed Padder †
22	220	500	47X468	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
23A	50		47X112	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Diode Filter
B	50			MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	" "
24	10	500	47X477	MC215	MO.5-41	1FM-41	1468-.00001	5W5Q1	IF Coupling
25	47	500	47X463	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor
26	20		47X482						Fixed Trimmer
27	4.7		47X478						Osc. Coupling

†Use exact replacement, a .005 may be used with a loss of sensitivity and calibration on SW

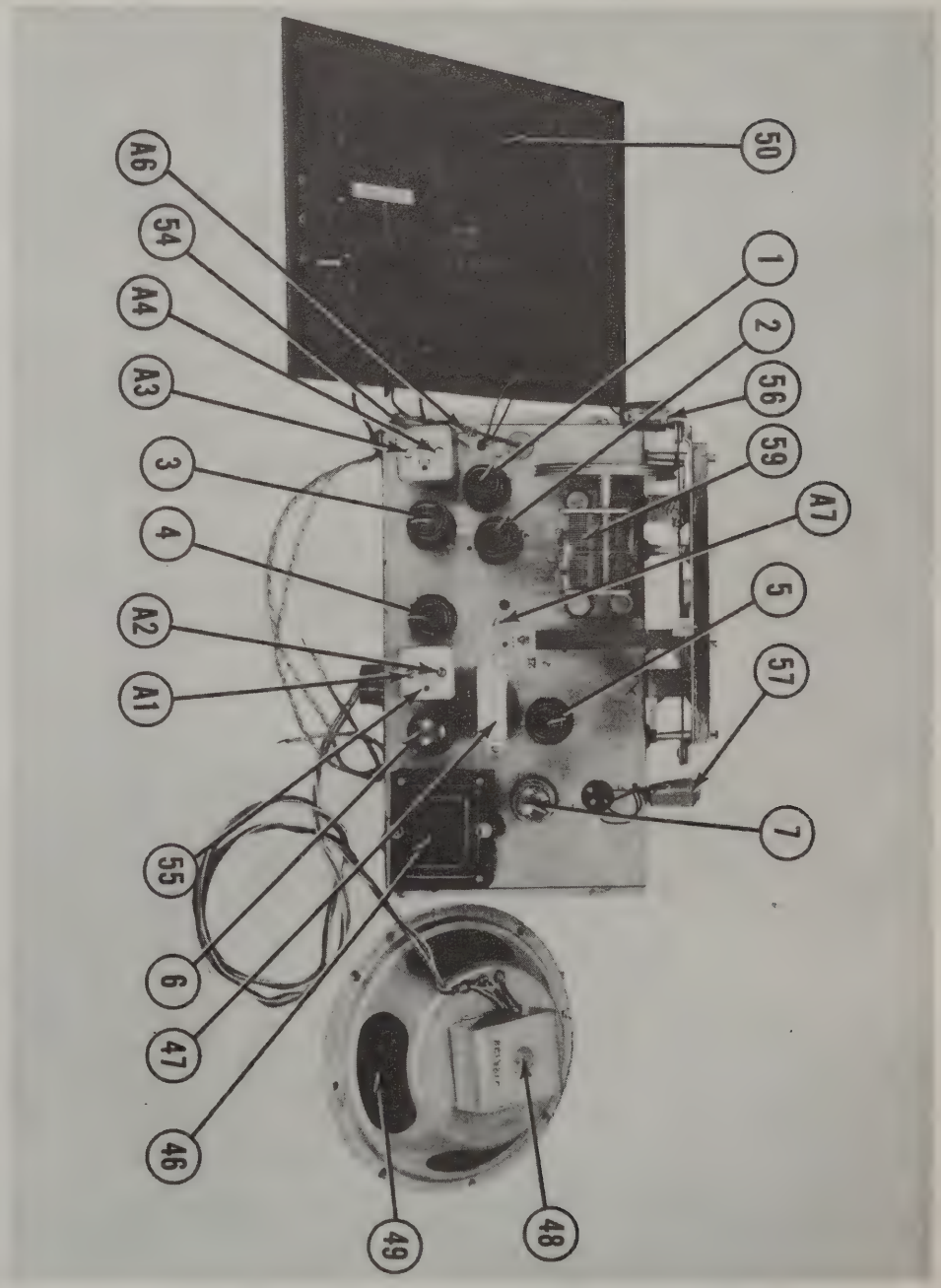
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	500KΩ	1	36X311	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 28A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
29A	3 Meg.	1	40X259	UM165	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
30	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. 1st Detector Grid
31	2200Ω	½	B84222	BTS-2200	Red-Red-Red 1st Detector Cathode
32	10kΩ	1	C84103	BTA-10K	Br.-Blk.-Or. Osc. Plate Load
33	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Osc. Grid
34	68KΩ	½	B84683	BTS-68K	Blue-Gray-Or. Screen Dropping
35	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
36	2700Ω	½	B84272	BTS-2700	Red-Vi.-Red 1st IF Plate Load
37	1 Meg.	½	B85105	BTS-1 Meg.	Br.-Blk.-Grn. 2nd IF Grid
38	39KΩ	1	C84393	BTA-39K	Or.-White-Or. Screen Dropping
39	220Ω	½	B85221	BW-½-220	Red-Red-Br. Filter
40	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode Load
41	4.7 Meg.	½	B85475	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
42	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
43	330KΩ	½	B85334	BTS-330K	Or.-Or.-Yl. Output Grid
44	620KΩ	½	B83624	BTS-680K	Blue-Red-Yl. Voltage Divider Bias
45	91KΩ	½	B83913	BTS-100K	White-Br.-Or. Voltage Divider Bias

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDASON PART No.	
46	117 VAC @ .51A	610VCT @ .062A	5.1VAC @ 1.8A	6.4VAC @ 2.25A	53X235	P-6011‡	T-13R20‡	‡Use universal mounting brkts.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
47	7160Ω	3.4Ω	450Ω	.7Ω	51X97	A-3823	T-14S85		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.		
48	FIELD RES. 1500Ω	VC IMP. 3.4Ω	{12A401* 12A398**	ST-438		*Used in model 54WG-2700A **Used in model 54WG-2500A
49	CONE DIA. 7-5/8"	VC DIA. 11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
50A	"B" Loop Ant.	.1Ω	3Ω	9A1396		Model 54WG-2700A
B	" " "	0Ω	2.9Ω	9A1453		" 54WG-2500A
51	"D" Ant. Coil	.5Ω	0Ω	9A1451	14-1044	
52	"B" Osc. "	.7Ω	2.5Ω	9A1452		Items 52,53 wound on same form
53	"D" " "	.1Ω	0Ω	9A1452		
54	Input IF	21.3Ω	21.8	9A1810	16-6658	
55	Output IF	21Ω	18Ω	9A1811	16-6660	

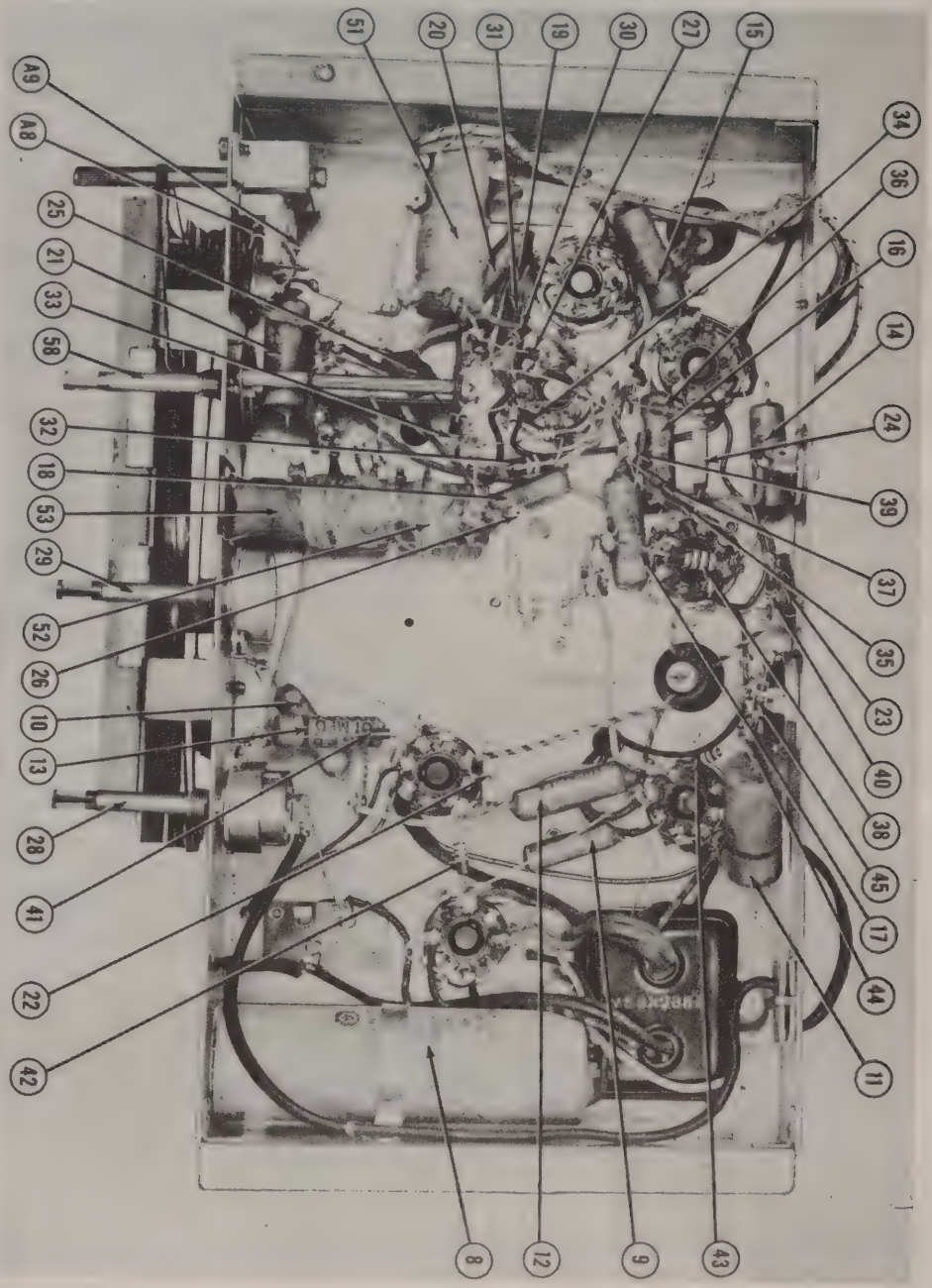
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
56	Bayonet	6-8	0.2	White			Type 51
57	"	6-8	0.2	White			" "

MISCELLANEOUS

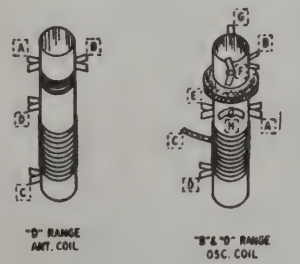
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
58	Switch	2A177	Band & Phono
59	Tuning Cap.	14A185	2 Gang Variable Cap.
A6	Trimmer	17A149	Loop Aerial (1.2-12 MMF)
A7	"	17A234	600KC Padder (250-525 MMF)
A8	Trimmer	17A163	Ant. "D" (2-25MMF)
A9	"		Osc. "D" "
	Knob	10A530	Volume Control
	"	10A531	Tuning "
	"	10A532	Tone "
	"	10A533	Band Change Switch
	Dial Scale	58X593	Glass
	Dial Background	58X601	
	Escutcheon	4X871	Dial

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

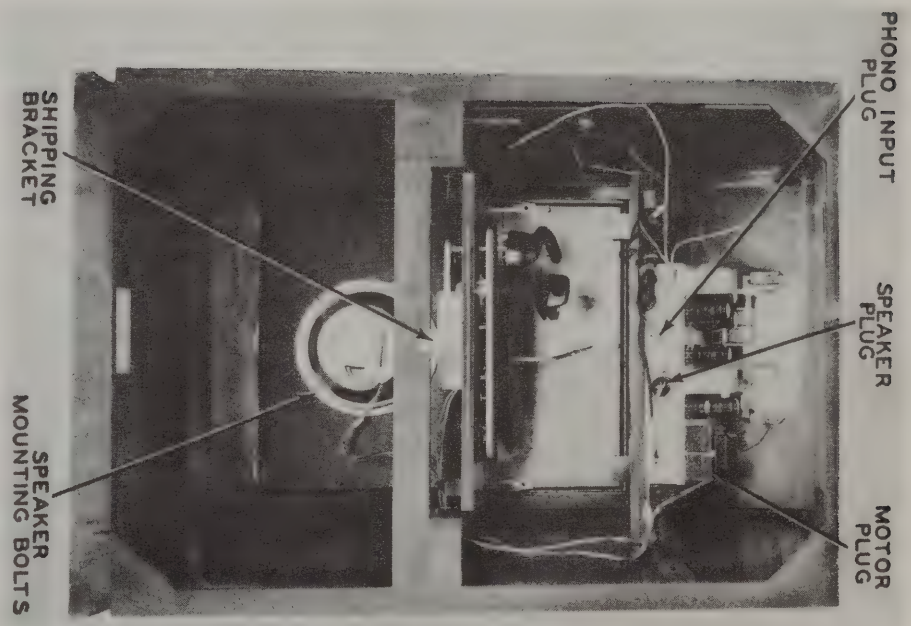
1 - Remove the following push-on type knobs: Volume Control, Tone Control, Phono-Broadcast Switch, and Tuning Knobs.
2 - Disconnect the speaker plug from the chassis.
3 - Disconnect the phono-pickup jack from chassis.
4 - Disconnect the phono-motor plug from chassis.
5 - Remove the ground lead lug from the hex screw on chassis.
6 - Disconnect lead going to cabinet antenna.
7 - Disconnect three leads going to the loop antenna.
8 - Remove dial lights from escutcheon plate.
9 - Remove the four hex screws and washers holding chassis to cabinet. Remove chassis.
10- Remove four wood screws holding speaker. Remove speaker.
11- Remove four nails holding antenna loop to cabinet. Remove antenna loop.



COIL DETAIL

50 CYCLE OPERATION

If it is desired to use the radio and record player on a 50 cycle power supply, it will be necessary to replace the metal drive pulley on the record player motor shaft with a 50 cycle pulley. This pulley is listed in the parts list.
To change the pulley, turn the record selector post to the 12" position and lift the turntable off of the record changer. Loosen the set screw holding the drive pulley on the motor shaft and remove the old pulley. Install the new 50 cycle pulley and replace the turntable.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0V.	0V.	0V.	0V.	7.8V.DC	175V.DC	6.4V.AC	225V.DC
2	6J5	0V.	0V.	145V.DC	175V.DC	-4.8VDC	145V.DC	6.4V.AC	0V.
3	6SK7	0V.	0V.	0V.	-.7V.DC	0V.	65V.DC	6.4V.AC	205V.DC
4	6SK7	0V.	0V.	0V.	-.6V.DC	0V.	65V.DC	6.4V.AC	230VDC
5	6SQ7	0V.	-.4V.DC	0V.	-.55V.DC	-.55V.DC	77V.DC	0V.	6.4V.AC
6	6V6GT	0V.	0V.	220V.DC	230V.DC	-1.85V.DC	0V.	6.4V.AC	0V.
7	5Y3GT	0V.	230V.DC	0V.	310V.AC	0V.	310V.AC	0V.	230V.DC

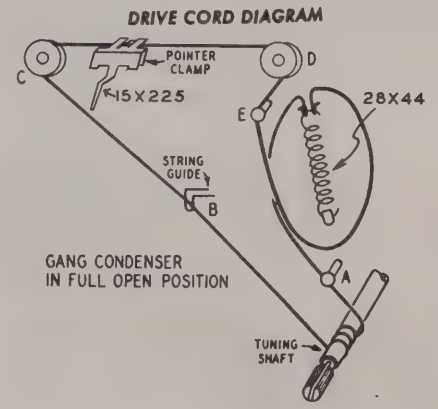
NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	0Ω	0Ω	4.5MEG	2.2KΩ	478KΩ	0Ω	410KΩ
2	6J5	0Ω	0Ω	420KΩ	478KΩ	38KΩ	420KΩ	0Ω	.5Ω
3	6SK7	0Ω	0Ω	0Ω	2.8MEG	0Ω	449KΩ	0Ω	680KΩ
4	6SK7	0Ω	0Ω	0Ω	3.5MEG	0Ω	449KΩ	0Ω	410KΩ
5	6SQ7	0Ω	4 MEG	0Ω	450KΩ	450KΩ	880KΩ	0Ω	0Ω
6	6V6GT	0Ω	0Ω	410 KΩ	410 KΩ	420KΩ	INF	0Ω	0Ω
7	5Y3GT	INF	410 KΩ	INF	1600Ω	INF	1600Ω	INF	410KΩ

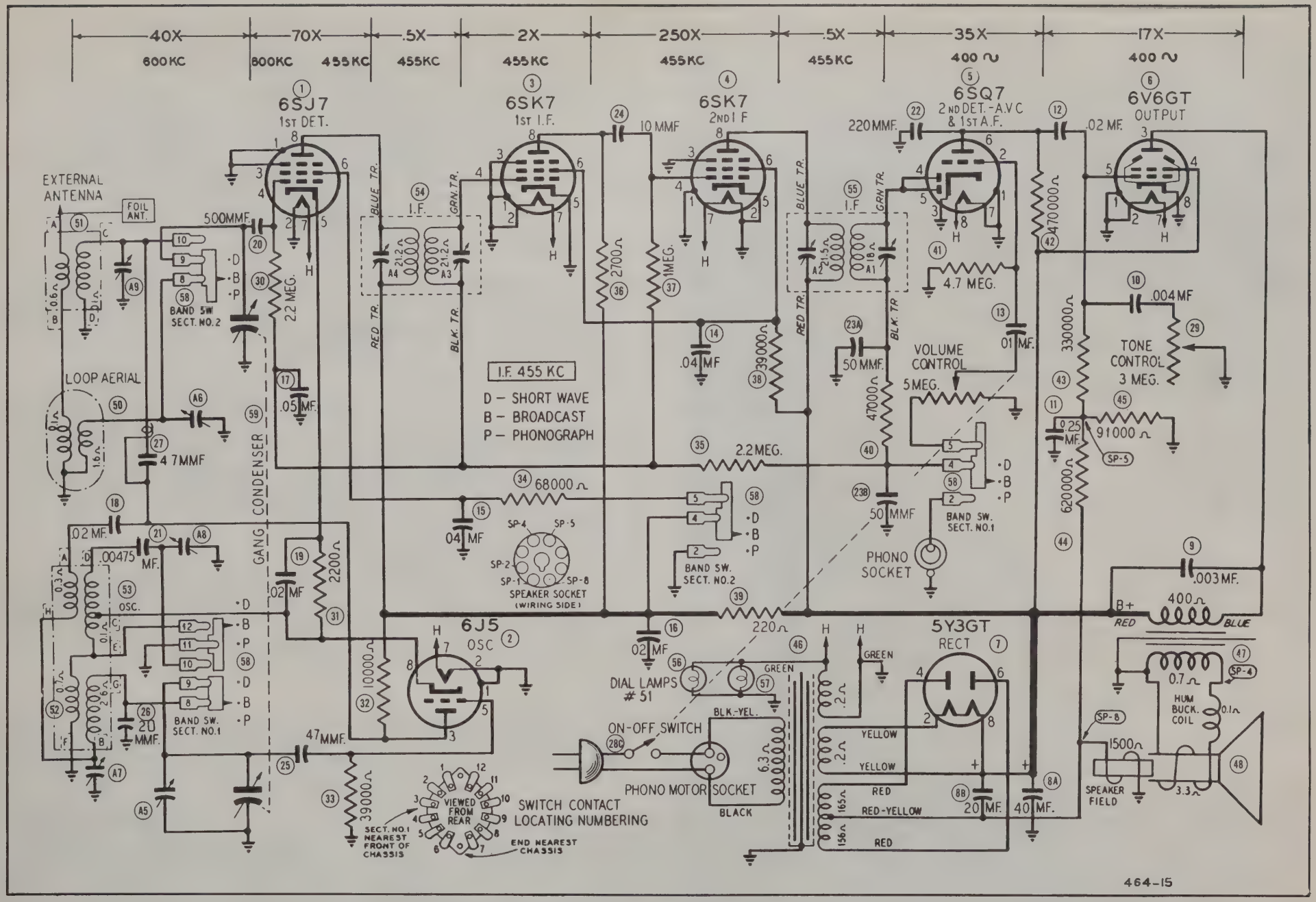
1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

DRIVE CORD DIAGRAM



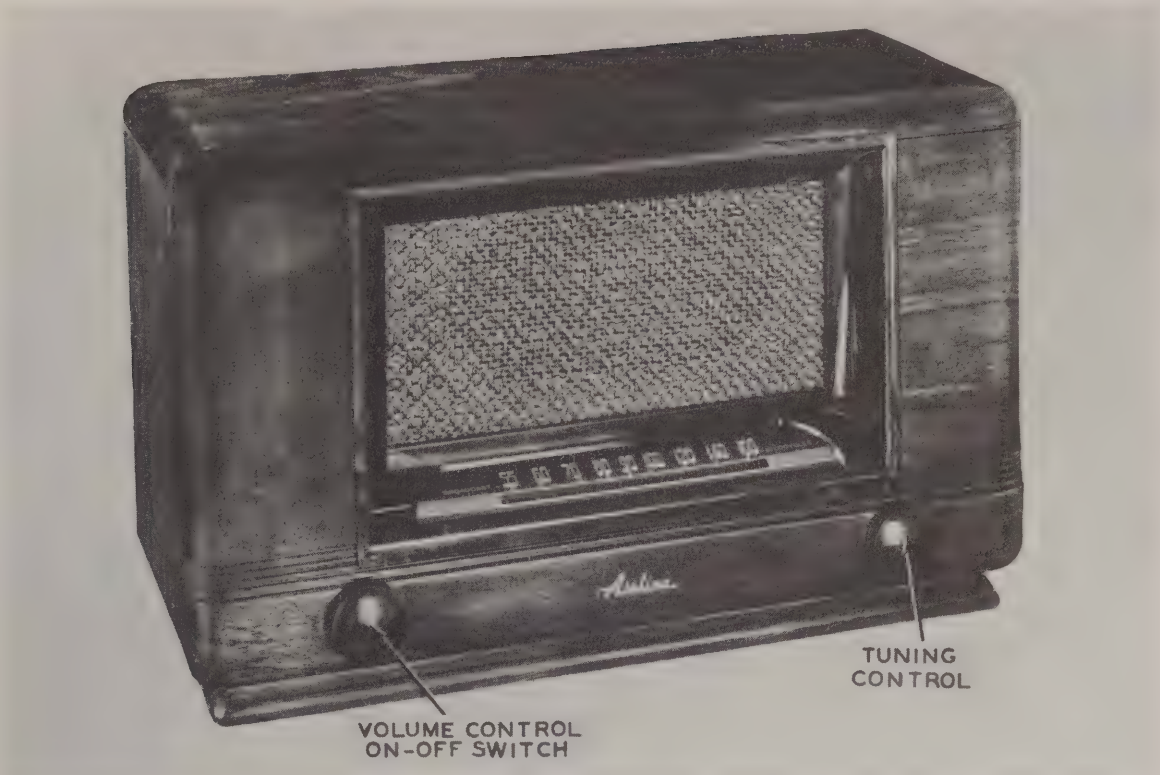
DRIVE CORD REPLACEMENT

Turn the gang condenser to the fully open position. Use a new drive cord 40" long and tie one end to the tension spring. Hook the other end of the tension spring to the tab on the drive pulley. Pass the cord through the slot in the drive pulley rim and continue one half turn counterclockwise around the drive pulley. Then pass the cord around idler stud A and wind three turns clockwise around the tuning shaft (turns must progress away from chassis). Pass cord through string guide B, over pulleys C and D and around idler stud E. Wrap 3/4 turn counterclockwise around drive pulley, stretch the tension spring and tie free end of the cord to spring. Cut off any excess string.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

AIRLINE
MODELS 64WG-1804A, 64WG-1804B



AIRLINE
MODELS 64WG-1804A, 64WG-1804B

AIRLINE MODEL 64WG-1804B

TRADE NAME	Airline Models 64WG-1804A, 64WG-1804B
MANUFACTURER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Mixer, 12SF7 IF-Det.-AVC, 12SJ7 1st AF, 35L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING - .230 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1620KC — **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Set dial pointer and diffuser strip as shown on dial calibration diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #2 (grid) 12SF7. Low side to B-.	455KC	Tuning control maximum clockwise.	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
"	High side to pin #6 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
"	"	1400KC	1400KC index line.	"	A5	"
50 MMFD	High side to ext. ant. clip. Low side to chassis.	"	"	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Mixer	12SA7	12SA7	8R	
3	IF-Det.-AVC	12SF7	12SF7	7AZ	
4	1st AF	12SJ7	12SJ7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	45X344	2N521	DHN-2x50-150	TA-530	PRS150-4040	EZ5515	Filter - Red
B	50	150							" - Green
C	20	25		TC26	M-25-25	TA-25	PRS25-25	BR202A	Cath. Bypass-Yellow
8	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Filter
9	.2	200	B66204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
10	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	35L6 Plate Bypass
11	.025	200	B64253	TP451	S-4-02	TC-12	484-025	DT4S25	Audio Plate Decoup.
12	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
13	.1	200	B66104	TP428	S-4-01	TC-1	484-.1	DT4P1	Audio Screen Bypass
14	.006	200	B66602	TP409	S-6-006	TC-26	484-006	DT6D6	Audio Coupling
15	.04	200	B66403	TP425	S-4-04	TC-14	484-04	DT4S4	Tone Compensation
16	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
17	.001	400	D66102	TP404	S-6-001	TC-21	484-001	DT6D1	Ant. Coupling
18	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	Decoupling *
19	470	500	47X467	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Audio Plate Bypass
20	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Diode
21	47	500	47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Tone Compensation
22	47	500	47X446	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
23	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

*Used in series B models

CONTROLS

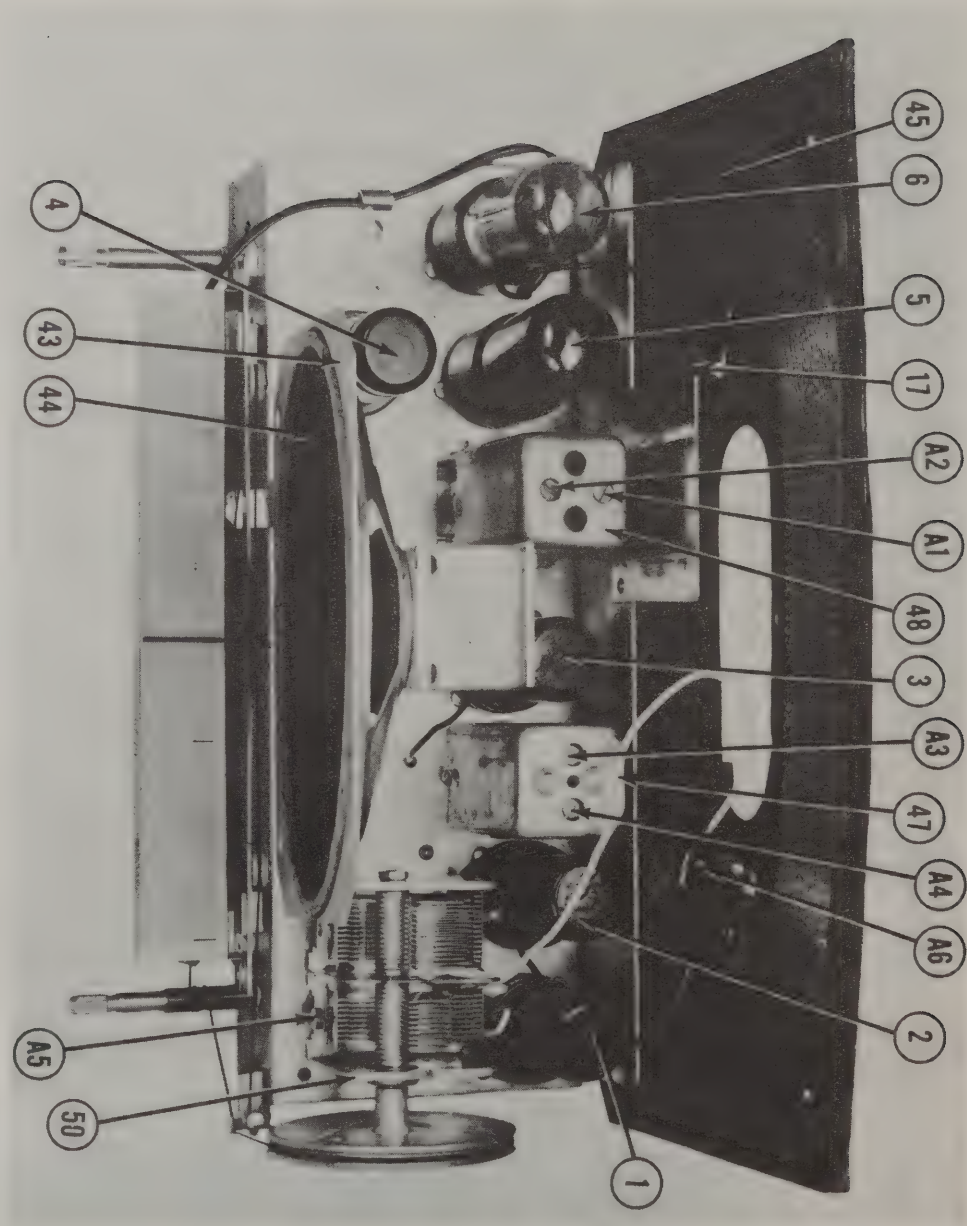
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	1	36X347	TM230	D13-133X	AT-92*	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 24A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
25	3300Ω	½	B84332	BTS-3300	Or.-Or.-Red RF Plate Load
26	100KΩ	½	B85104	BTS-100K	Br.-Blk.-Yl. Converter Grid
27	39KΩ	½	B84393	BTS-39K	Or.-white-Or. Osc. Grid
28	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. IF Filter
30	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
31	4.7 Meg.	½	B85475	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
32	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
33	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load
34	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. 1st AF Plate Filter
35	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
36	180Ω	½	B83181	BW-½-180	Br.-Gray-Br. Output Cathode
37	470Ω	½	B85471	BTS-470	Yl.-Vi.-Br. Filter - See Note 1
38	1500Ω	1	C84152	BTA-1500	Br.-Grn.-Red Filter
39	27Ω	½	B84270	BW-½-27	Red-Vi.-blk. Rectifier Ballast
40	270KΩ	½	B85274	BTS-270K	Red-Vi.-Yl. Line Isolating
41	39Ω	2	D84390	BW-2-39	Or.-white-blk. Line Dropping

Note 1 - Used in series B models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	INSTALLATION NOTES
42	3000Ω	4Ω	350Ω	.85Ω	51A116	A-3676†	T-13839†	†Drill new mounting holes. ‡Mount vertically instead of horizontally beneath chassis.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
43	PM	4Ω	12A431			
	CONE DIa.	VC DIa.				
44	4x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

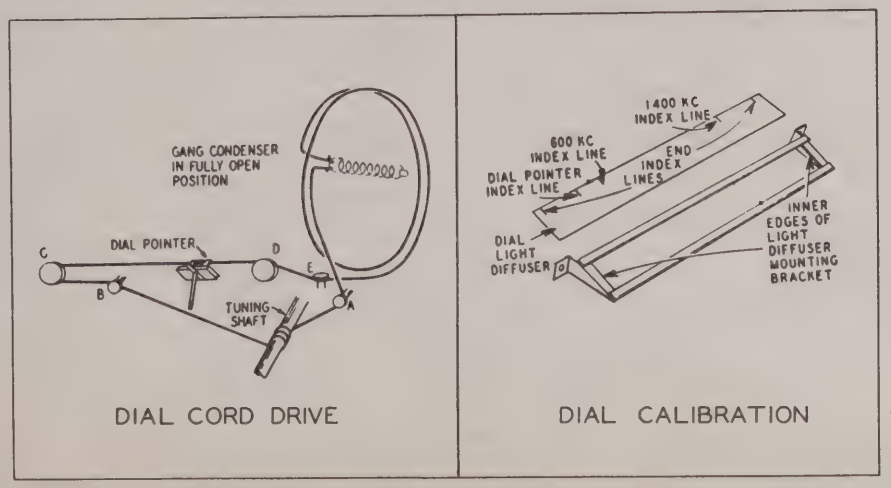
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
45	Loop Ant.	.2Ω	1Ω	9A1804		
46	Osc. Coil	.5Ω	8Ω	9A1805	14-1040	
47	Input IF	22Ω	22Ω	9A1775	13-3655	
48	Output IF	21.8Ω	18.3Ω	9A1776	16-3660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA AIRLINE PART No.		INSTALLATION NOTES
49	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

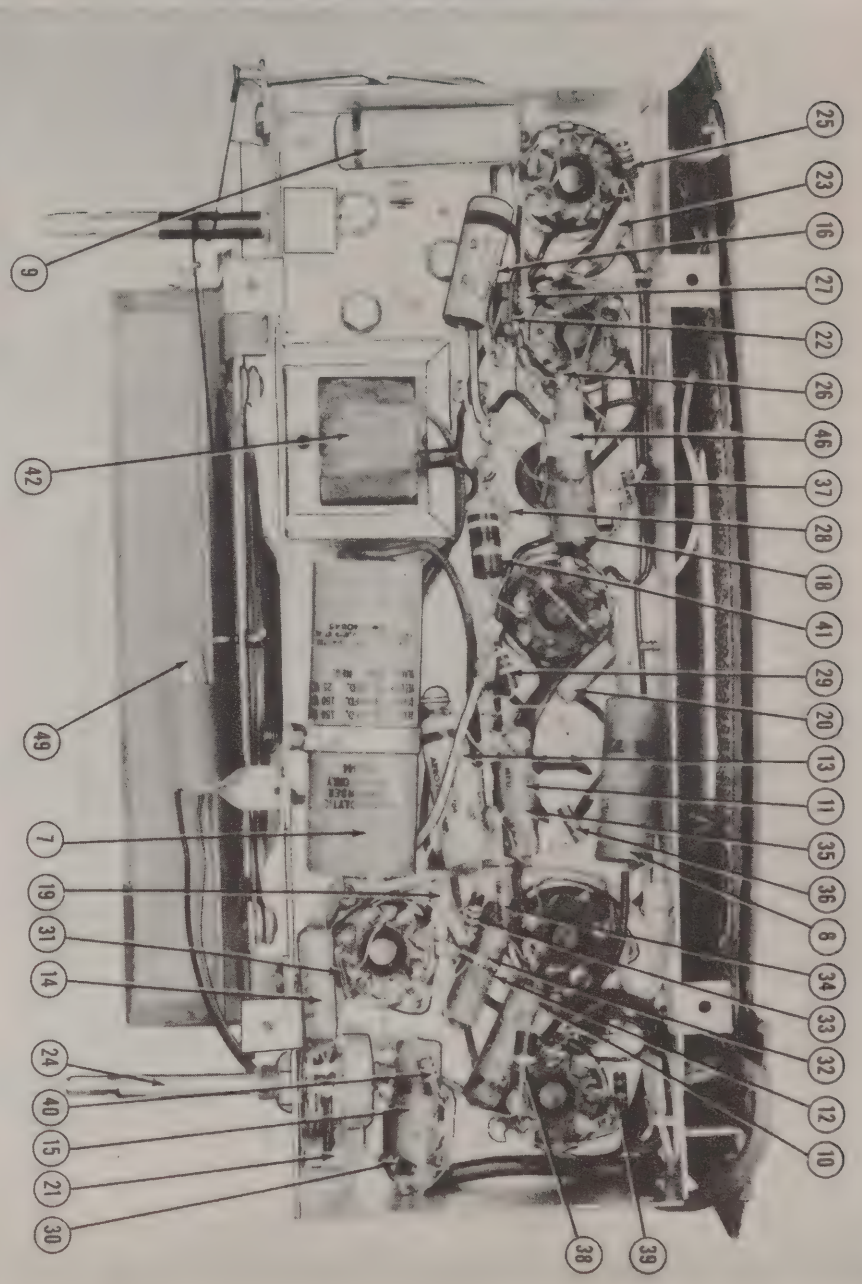
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
50	Tuning Cap.	14A179	2 Gang Variable Cap.
A6	Trimmer	17A116	Antenna Adjustment
	Knob	10A297	Walnut-Volume & Tuning

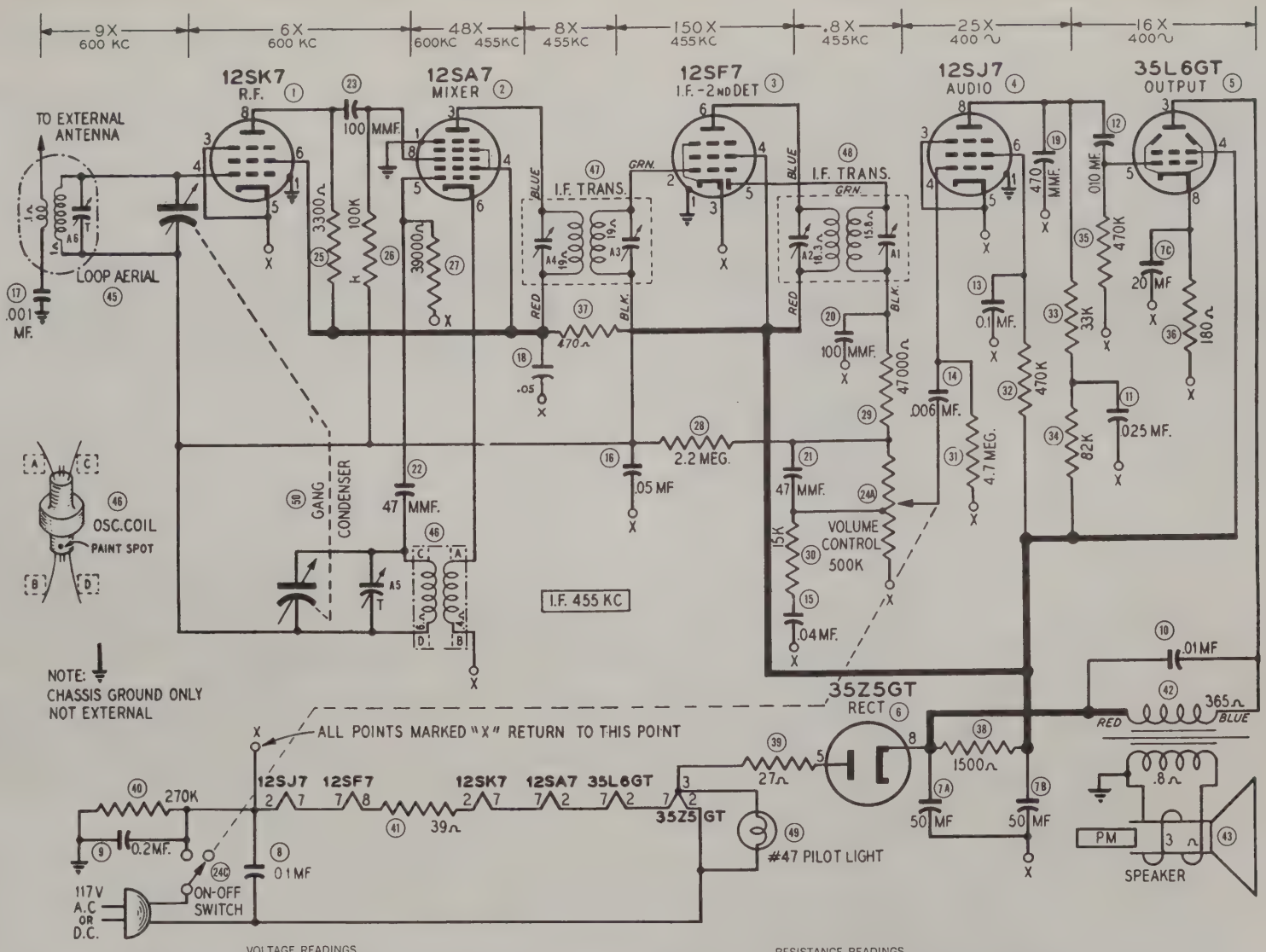


DIAL CORD DRIVE

DIAL CALIBRATION

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-.05V.DC	29.7V.AC	0V.	-.4V.DC	0V.	73V.DC	42V.AC	47V.DC
2	12SA7	-.05V.DC	53V.AC	73V.DC	73V.DC	-.4V.DC	0V.	42V.AC	-.4V.DC
3	12SF7	-.05V.DC	-.4V.DC	0V.	73V.DC	-.3V.DC	73V.DC	11.6VAC	23.5VAC
4	12SJ7	-.05V.DC	0V.	0V.	-.45V.DC	0V.	19.7V.DC	11.6VAC	29V.DC
5	35L6GT	0V.	85V.AC	107V.DC	73V.DC	0V.	0V.	53V.AC	4.8V.DC
6	35Z5GT	0V.	117V.AC	112V.AC	0V.	111V.AC	0V	85VAC	117V.DC

RESISTANCE READINGS

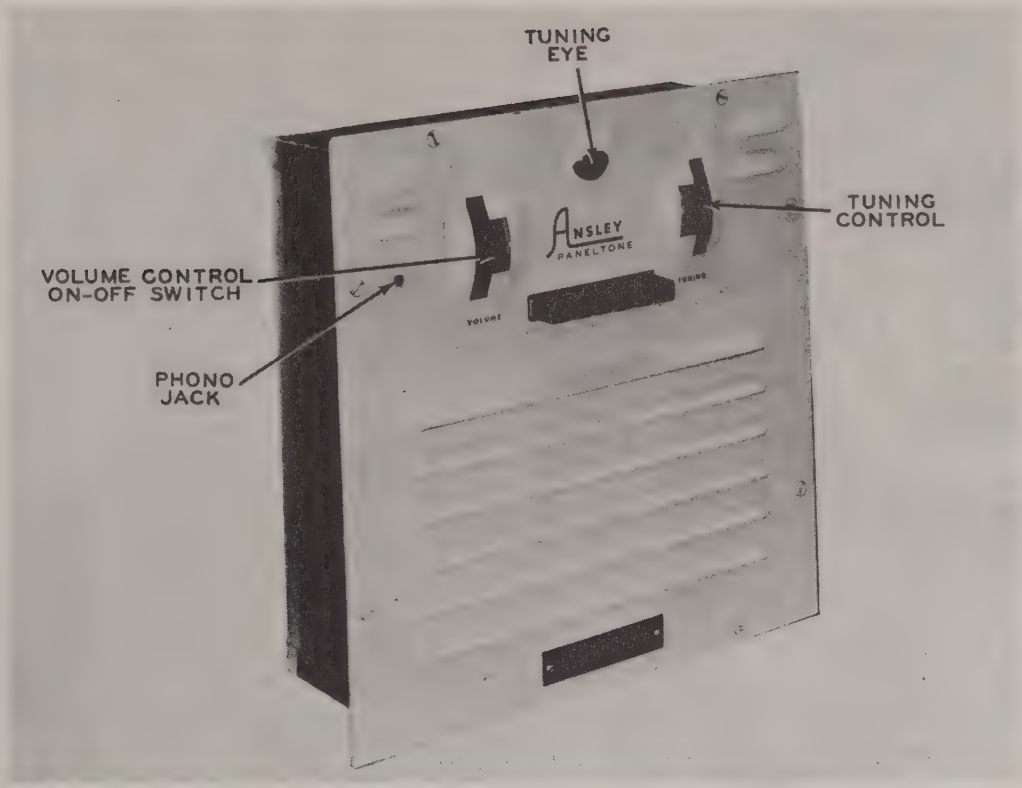
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	320KΩ	65Ω	0Ω	2.7MEG	0Ω	30.5KΩ	78Ω	33.5KΩ
2	12SA7	320KΩ	89Ω	30.5KΩ	30.5KΩ	37KΩ	.5Ω	78Ω	2.8MEG
3	12SF7	320KΩ	2.7MEG	0Ω	30.5KΩ	480KΩ	30.5KΩ	12Ω	24Ω
4	12SJ7	320KΩ	0Ω	0Ω	4.5MEG	0Ω	500KΩ	12Ω	145KΩ
5	35L6GT	INF	123Ω	29KΩ	30.5KΩ	510KΩ	INF	89Ω	175Ω
6	35Z5GT	INF	152Ω	149Ω	INF	177Ω	INF	123Ω	29KΩ

464-27

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ANSLEY
MODEL 41 (PANELTONE)



ANSLEY MODEL 41 (PANELTONE)

ANSLEY
MODEL 41 (PANELTONE)

TRADE NAME	Ansley Model 41 (Paneltone)
MANUFACTURER	Ansley Radio Corp., 41 St. Joes Ave., Trenton, N.J.
TYPE SET	AC Operated Superheterodyne Receiver
TUBES (SEVEN)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7GT Det.-AVC-AF, 6U5/6G5 Tuning Eye, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING - .305 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1730

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to RF stator section of tuning gang. Low side to chassis.	456KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	A6,A7.	" " " "
"	"	600KC	Tune in 600KC signal.	"	A8	Rock rotor and adjust for maximum output.
						Repeat adjustments A5, A6, A7 and A8 as given until no further improvement in output can be obtained.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ANSLEY PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Tuning Eye	6U5/6G5	6U5/6G5	6R	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ANSLEY PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	20	450	CE-1	FP234	DY-2x20-450	EL-220	AF44J	UP8BJ38	■ Filter
B	20	450							▲ "
9	25	50	CE-2	TC-36	M-25-50	TA-525	PRS50-25	BR255	6V6 Cath. Bypass
10	25	50	CE-2	TC-36	M-25-50	TA-525	PRS50-25	BR255	Audio Cath. Bypass
11	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	Line Bypass
12	.01	400	CP-3	TP421	S-4-01	TC-11	484-01	DT4S1	6V6 Plate Bypass
13	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
14	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	" "
15	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
16	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	IF Screen Bypass
17	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	IF Cath. Bypass
18	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
19	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	RF Cath. Bypass
20	.05	400	CP-6	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
21	.02	400	CP-4	TP423	S 4-02	TC-12	484-02	DT4S2	Ant. Coupling
22	50	500	CM-1	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Audio Grid Bypass
23	100	500	CM-4	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Diode Coupling
24	100	500	CM-4	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Diode
25	100	500	CM-4	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	" " "
26	50	500	CM-1	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

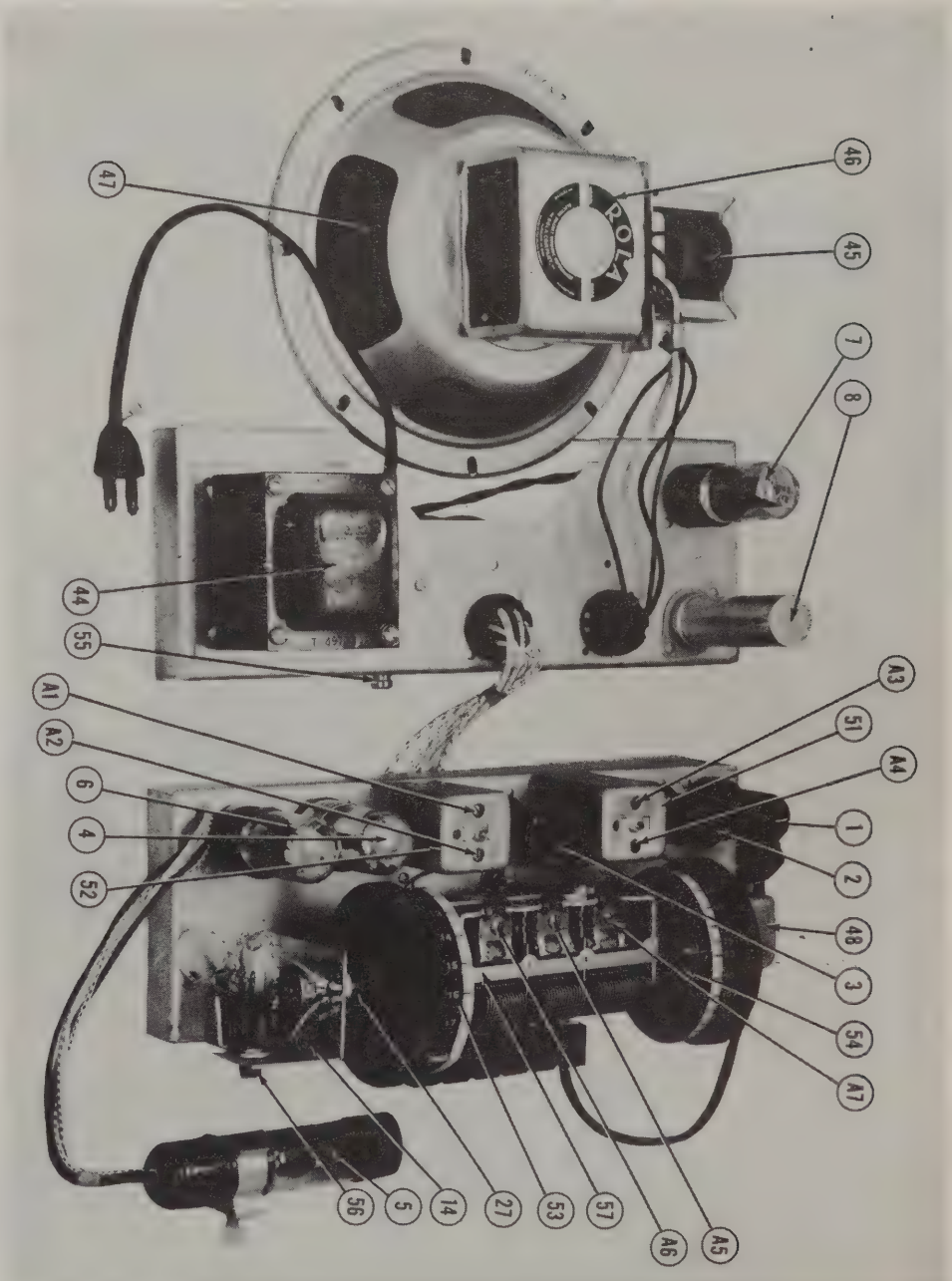
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	ANSLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27A	500KΩ	1	GC-45				Volume Control & Switch†
27B	1 Meg.	1	RP-4				" " " *

†Used in later production.
*Used in early production.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ANSLEY PART No.	IRC PART No.	
28	240KΩ	½	RM-3	BTS-220K	Red-Yl.-Yl. AVC Network
29	330Ω	½	RM-10	BW-½-330	Or.-Or.-Br. RF Cathode
30	10KΩ	½	RM-13	BTS-10K	Br.-Blk.-Or. RF Coil Shunt
31	20KΩ	½	RM-7	BTS-22K	Red-Blk.-Or. Osc. Grid
32	1000Ω	½	RM-9	BTS-1000	Br.-Blk.-Red Conv. Plate Filter
33	330Ω	½	RM-10	BW-½-330	Or.-Or.-Br. IF Cathode
34	1 Meg.	½	RM-1	BTS-1 Meg.	Br.-Blk.-Grn. AVC Diode Load
35	1 Meg.	½	RM-1	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	51KΩ	½	RM-14	BTS-47K	Grn.-Br.-Or. IF Filter
37	240KΩ	½	RM-3	BTS-220K	Red-Yl.-Yl. Diode Load
38	10KΩ	½	RM-13	BTS-10K	Br.-Blk.-Or. 1st AF Cathode
39	240KΩ	½	RM-3	BTS-220K	Red-Yl.-Yl. 1st AF Plate Load
40	1 Meg.	½	RM-1	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Plate Load
41	510KΩ	½	RM-12	BTS-470K	Grn.-Br.-Yl. Output Grid
42	600Ω	5	RW-18	AB-600	Output Cathode
43	7000Ω	10	RW-10	AB-7000	Plate Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	ANSLEY PART No.	STANCOR PART No.	THORDASON PART No.	
44	117VAC @ .305A	730 VCT @ .066A	5.1 VAC @ 1.8A	6.5 VAC @ 3.0A	TP-2	P-6012††	T-13R13‡	††Drill new mounting holes. ‡Remove plate over chassis cutout and mount transformer

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ANSLEY PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
45	4200Ω	3.9Ω	510Ω	1.25Ω	TO-2	A-3877**	T-13S39**		**Speaker has provisions for mounting larger transformer

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ANSLEY PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
46	1,000Ω	3.9Ω	QS-3	ST-439		
	CONE DIA.	VC DIA.				
47	7½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ANSLEY PART No.	MEISSNER PART No.	
48	Ant. Coil	0Ω	8Ω	LA-1	14-7413	
49	RF Coil	60Ω	8Ω	LR-1		
50	Osc. Coil		5Ω	LO-3	14-1040	
51	Input IF	13Ω	13Ω	T1-1	16-6658	
52	Output IF	13Ω	13Ω	T1-1	16-6660	

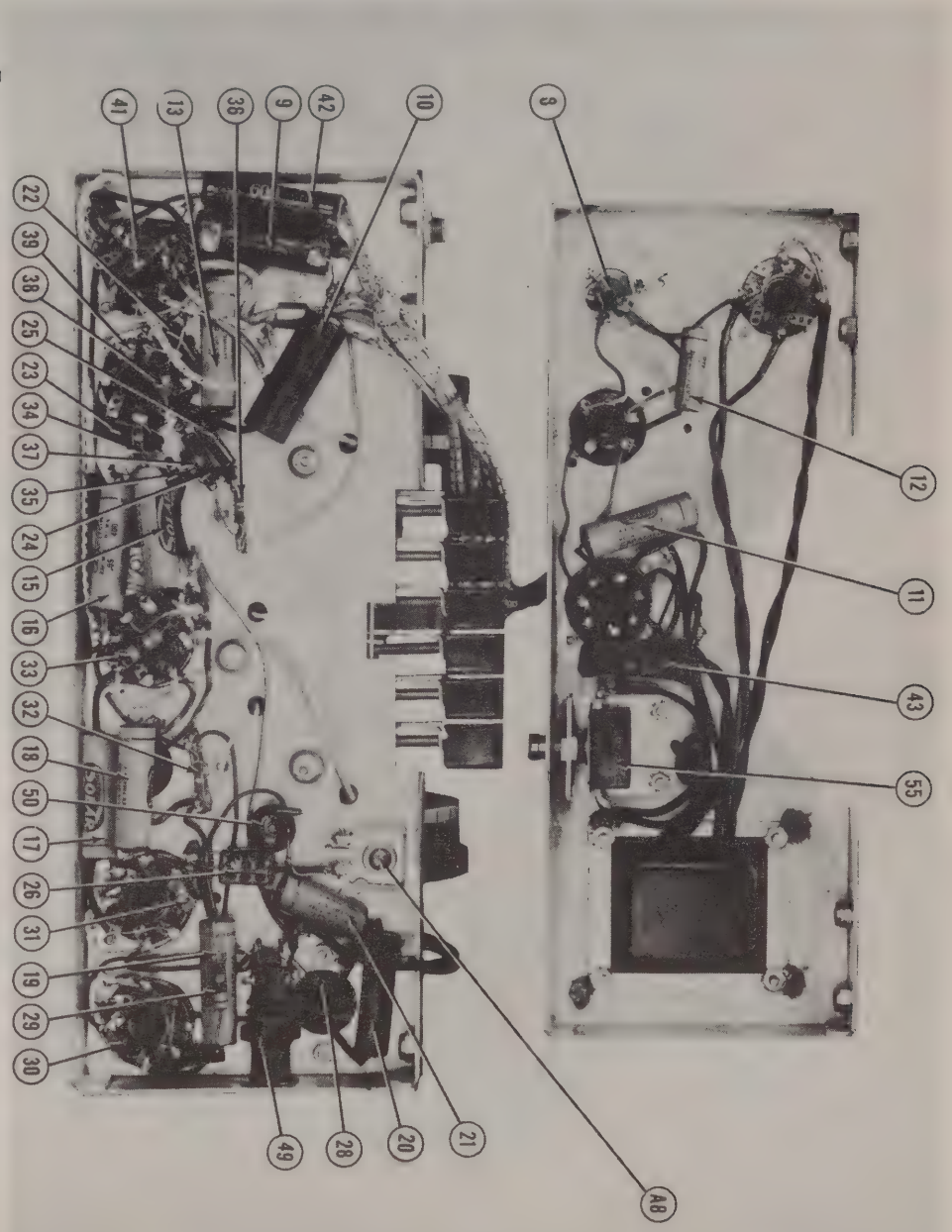
DIAL LIGHT

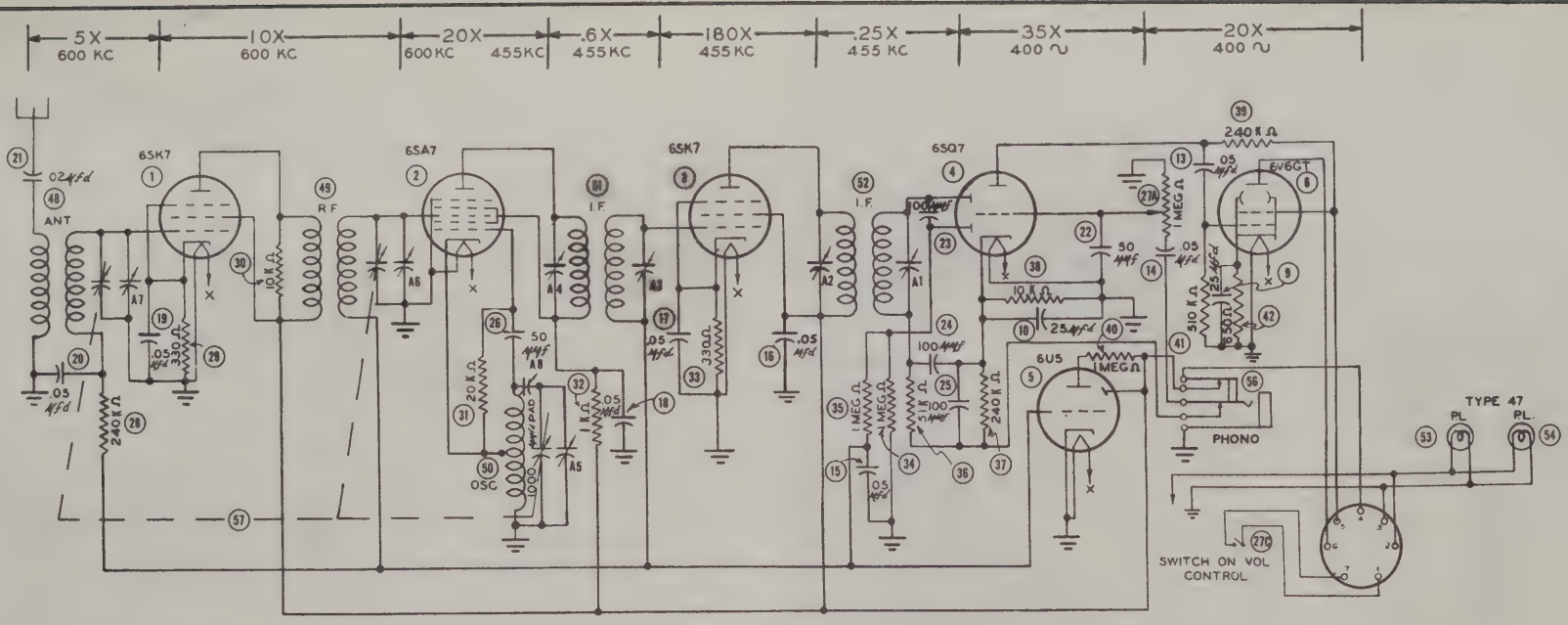
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ANSLEY PART No.		
53	Bayonet	6-8	0.15	Brown			Type 47
54	"	6-8	0.15	"			" "

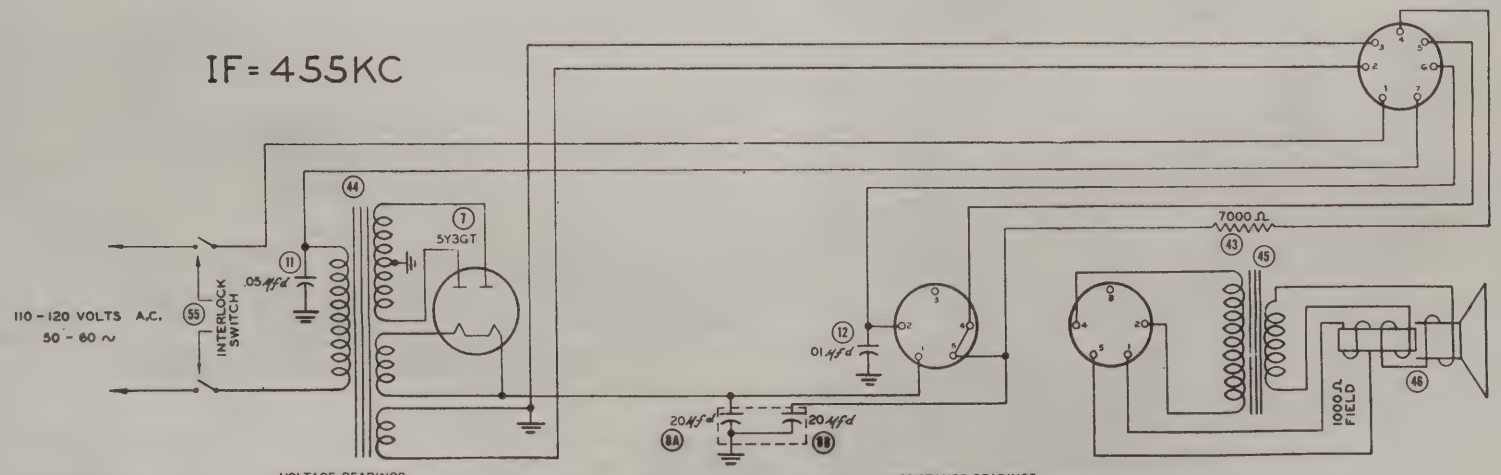
MISCELLANEOUS

ITEM No.	PART NAME	ANSLEY PART No.	NOTES
55	Switch	SP-1	Interlock
56	Phono-Jack	J-1	
57	Tuning Cap.		3 Gang Variable Cap.
A8	Padder	CT-3	Oscillator 400-1000 MMF

CHASSIS—BOTTOM VIEW







VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	6.5V.AC	1.6V.DC	-5.0V.DC	1.6V. DC	140V.DC	0V.	115V.DC
2	6SA7	0V.	6.5V.AC	90V.DC	12.5V.DC	-4.5V.DC	0V.	0V.	-8.4V.DC
3	6SK7	0V.	6.5V.AC	1.6V.DC	-.45V.DC	1.6V.DC	140V.DC	0V.	103V.DC
4	6SQ7GT	0V.	0V.	3.0V.DC	-2V.D C	-.02V.DC	250V.DC	6.5V.AC	0V.
6	6V6GT	0V.	6.5V.AC	310V.DC	325V.DC	0V.	0V.	0V.	22V.DC
7	5Y3GT	0V.	400V.DC	0V.	365V.AC	0V.	365V.AC	0V.	400V.DC

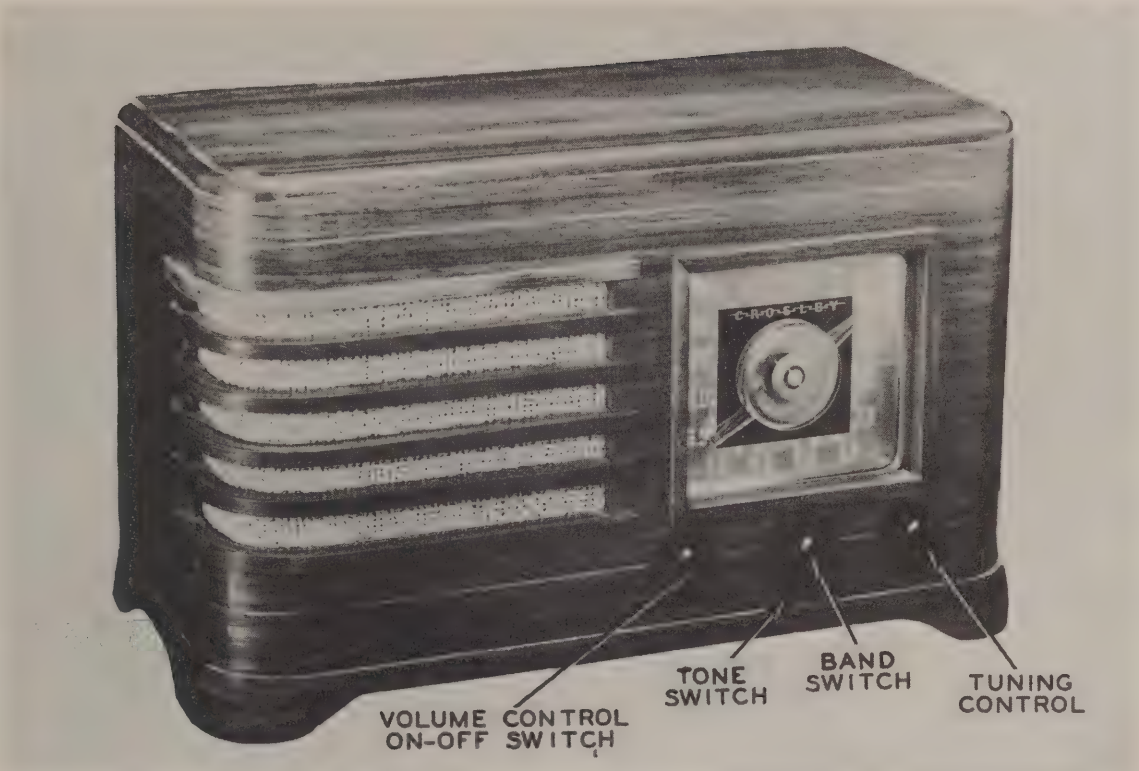
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	.12Ω	300Ω	2.6MEG	300Ω	332KΩ	0Ω	332KΩ
2	6SA7	0Ω	.12Ω	333KΩ	333KΩ	21KΩ	.75Ω	0Ω	2.2MEG
3	6SK7	0Ω	.12Ω	300Ω	2.2MEG	300Ω	332KΩ	0Ω	332KΩ
4	6SQ7GT	0Ω	490KΩ	9.5KΩ	1.1 MEG	290KΩ	565KΩ	.12Ω	0Ω
6	6V6GT	0Ω	.12Ω	325KΩ	325KΩ	520KΩ	INF	0Ω	600Ω
7	5Y3GT	INF	325KΩ	INF	175Ω	INF	185Ω	INF	325KΩ

464-38

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CROSLEY
MODELS 56TA-L, 56TC-L,
56TN-L, 56TW-L

CROSLEY
MODELS 56TA-L, 56TC-L,
56TN-L, 56TW-L

CROSLEY MODEL 56TN-L

TRADE NAME	Crosley Models 56TA-L, 56TC-L, 56TN-L, 56TW-L
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC - DC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES(FIVE)	Types, 14Q7 Mixer, 14A7/12B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING - .240 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC **SHORT WAVE** 5.8-15MC

ALIGNMENT INSTRUCTIONS

Turn tuning condenser to completely closed position and set dial pointer on reference line. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Be sure correct peak is obtained when adjusting A5, correct peak is second one heard as the trimmer adjustment screw is opened from a completely closed position. (image should be heard 910KC lower on receiver dial).

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200 MMFD	High side to ant. lead. Low side to B-.	455KC	BC (A)	1620KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, connect .1 MFD in series with low lead to B-.
400Ω res.	"	15.3MC	SW (O)	15.3MC	"	A5	"
"	"	15MC	"	15MC	"	A6	"
200 MMFD	"	1400KC	BC (A)	1400KC	"	A7,A8	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	14Q7	14Q7	8AL	
2	IF Amp.	14A7/12B7	14A7/12B7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	15	140	W-134177	2N509	M-2x16-150	TA-116	PRS150-20-20	BRL2215	Filter - Red
B	15	120							" - Blue
7	.05	200	39001-65	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
8	.022	200	39001-63	TP423	S-4-02	TC-12	484-.02	DT4S2	50A5 Plate Bypass
9	.022	200	39001-63	TP423	S-4-02	TC-12	484-.02	DT4S2	Audio Coupling
10	.0033	600	39001-10	TP406	S-6-003	TC-23	684-.003	DT5D3	" "
11	.022	200	39001-63	TP423	S-4-02	TC-12	484-.02	DT4S2	Hum Feedback
12	.1	200	39001-67	TP428	S-4-1	TC-1	484-.1	DT4P1	IF Cath. Bypass
13	.022	200	39001-63	TP423	S-4-02	TC-12	484-.02	DT4S2	AVC Filter
14	.0033	200	39001-10	TP406	S-4-003	TC-23	484-.003	DT6D3	14Q7 Screen Bypass
15	.022	200	39001-63	TP423	S-4-02	TC-12	484-.02	DT4S2	Tone Compensation*
16	220	500	39004-9	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
17	50	500	39004-5	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor
18	580	300	OC210685143						Fixed Padder SW

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	1 Meg.	1	C46846-6	MR53	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

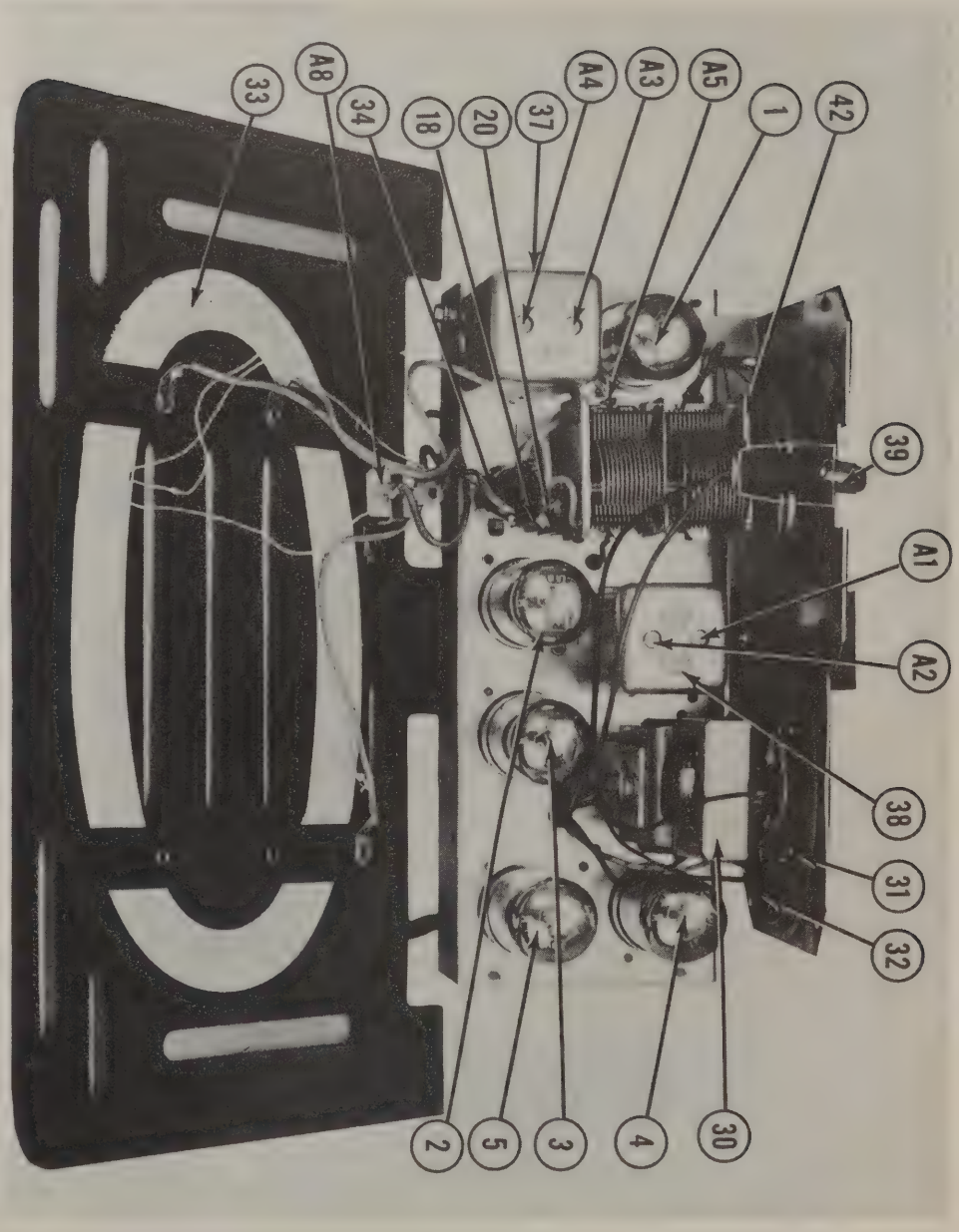
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	IDENTIFICATION CODES
20	330KΩ	½	39281-28	BTS-330K	Or.-Or.-Yl. SW Converter Grid
21	15 Meg.	½	39281-38	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
22	22KΩ	½	39281-21	BTS-22K	Red-Red-Or. Osc. Grid
23	470Ω	½	39281-11	BTS-470	Yl.-Vi.-Br. Filter
24	3.3 Meg.	½	39281-34	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
25	150Ω	½	39281-8	BW-½-150	Br.-Grn.-Br. Output Cathode
26	5 Meg.	½	39281-35	BTS-4.7 Meg	Grn.-Blk.-Grn. 1st AF Grid
27	4700Ω	½	39281-17	BTS-4700	Yl.-Vi.-Red Hum Feedback
28	510KΩ	½	39281-29	BTS-470K	Grn.-Br.-Yl. 1st AF Plate Load
29	470KΩ	½	39281-29	BTS-470K	Yl.-Vi.-Yl. Output Grid

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
30	2075Ω	3.6Ω	160Ω	.6Ω		A-3876†	T-14S82†		†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CROSLEY PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
31	450Ω	3.6Ω	GC-49675-S	ST-537		
	CONE DIA.	VC DIA.				
32	3-15/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

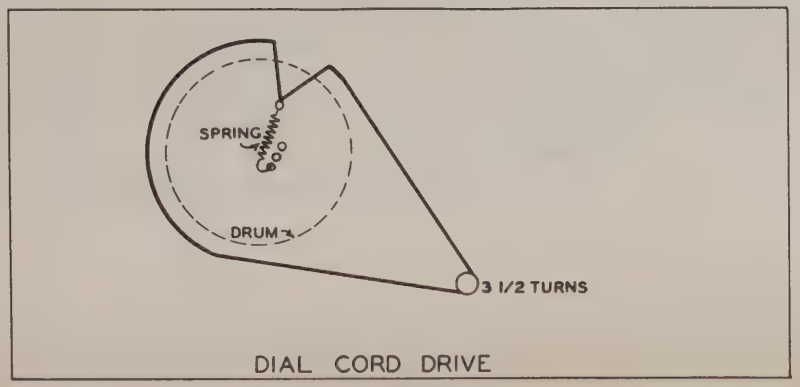
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CROSLEY PART No.	MEISSNER PART No.	
33	Loop Ant.	.1Ω	1.4Ω	AC134618		Used on models 56TA-L, 56TW-L on 56TC-L use AC134288
34	SW Ant. Coil	.7Ω	.3Ω	AW134994	14-1044	
35	BC Osc. "	1Ω	5.8Ω	AW134993		Item 35, 36 wound on same form
36	SW " "	.2Ω	0Ω	AW134993		
37	Input IF	22.3Ω	19.5Ω	AW134065	16-6658	
38	Output IF	27Ω		AW134158	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CROSLEY PART No.		
39	Bayonet	6-8	0.15	Brown	W-48858		Type 47

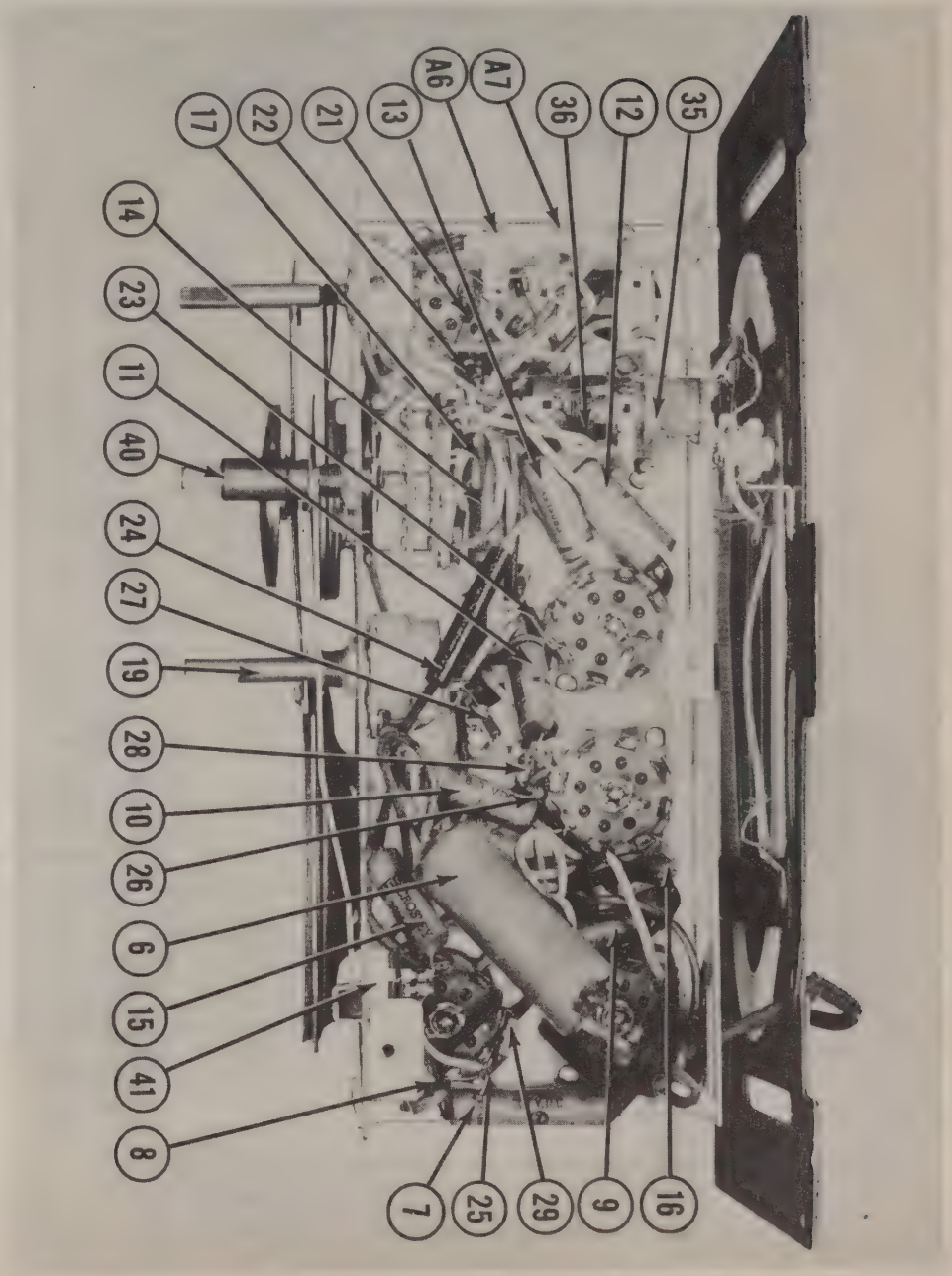
MISCELLANEOUS

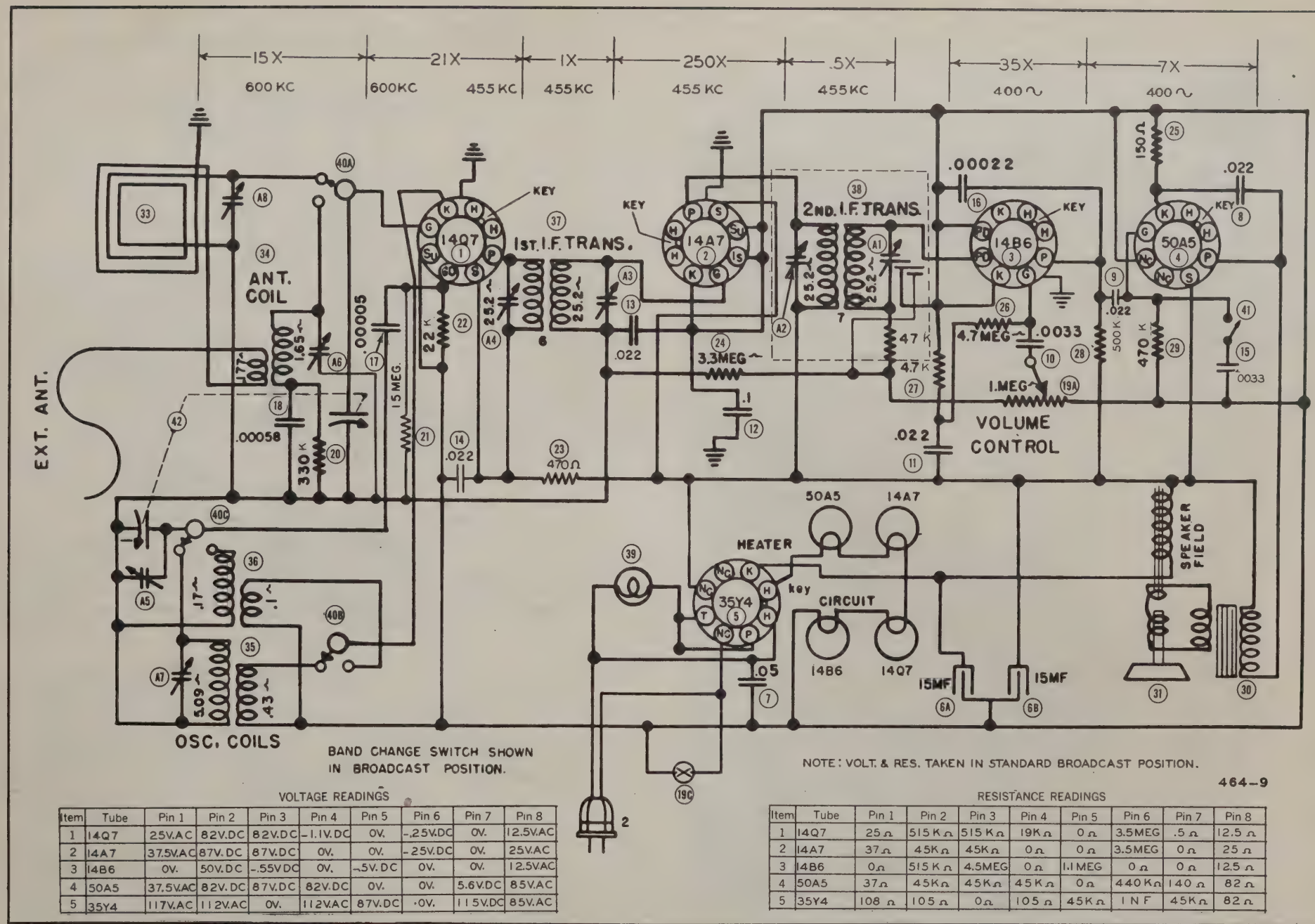
ITEM No.	PART NAME	CROSLEY PART No.	NOTES
40	Band Switch	49772-3	
41	Tone Switch		
42	Tuning Cap.	B-134995	2 Gang Variable Cap.
A6	Trimmer	AB-135088	H.F. Ant.
A7	"		B.C. Osc.
	Cabinet	D-132136-1	Plastic - Brown (56TA-L)
	"	AW-134738	" Ivory (56TW-L)
	"	D-134586	Wood (56TC-L)
	Knob	W-134882	(56TA-L, 56TC-L)
	"	W-134883	(56TW-L)
	Dial Face	C-135175	
	" Pointer	B-134570	
	" " Clip	W-134667	
	" Cord Spring	W-51752	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





BAND CHANGE SWITCH SHOWN IN BROADCAST POSITION.

NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION.

464-9

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25V.AC	82V.DC	82V.DC	-1.1V.DC	0V.	-.25V.DC	0V.	12.5V.AC
2	14A7	37.5V.AC	87V. DC	87V.DC	0V.	0V.	-25V.DC	0V.	25V.AC
3	14B6	0V.	50V.DC	-.55V.DC	0V.	-.5V.DC	0V.	0V.	12.5V.AC
4	50A5	37.5V.AC	82V. DC	87V.DC	82V.DC	0V.	0V.	5.6V.DC	85V.AC
5	35Y4	117V.AC	112V.AC	0V.	112V.AC	87V.DC	·0V.	115V.DC	85V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25Ω	515KΩ	515KΩ	19KΩ	0Ω	3.5MEG	.5Ω	12.5Ω
2	14A7	37Ω	45KΩ	45KΩ	0Ω	0Ω	3.5MEG	0Ω	25Ω
3	14B6	0Ω	515KΩ	4.5MEG	0Ω	1.1MEG	0Ω	0Ω	12.5Ω
4	50A5	37Ω	45KΩ	45KΩ	45KΩ	0Ω	440KΩ	140Ω	82Ω
5	35Y4	108Ω	105Ω	0Ω	105Ω	45KΩ	INF	45KΩ	82Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CROSLEY
MODEL 56TG

CROSLEY
MODEL 56TG

CROSLEY MODEL 56TG

TRADE NAME	Crosley Model 56TG
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC - DC Superheterodyne Receiver
TUBES (FIVE)	Types, 14Q7 Converter, 14A7/12B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING - .245 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC — **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #6 (grid) 14Q7. Low side to B-.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
	Loop Connect output of signal generator to loop of few turns of wire and radiate signal.	1500KC	1500KC	"	A5	Place chassis in cabinet. Set dial to 1500KC and remove chassis being careful not to disturb setting. Adjust for maximum output.
	"	"	"	"	A6	"
	"	600KC	Tune in 600KC signal.	"	A7	Rock dial and adjust for maximum output. Repeat adjustments A5 and A6 at 1500KC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		14Q7	8AL	
2	IF Amp.		14A7/12B7	8V	
3	Det.-AVC-AF		14B6	8W	
4	Power Output		50A5	6AA	
5	Rectifier		35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		2N520	M-50+30-150	TA-530	PRSA150-40-40	BRD3515	Filter - Red
B	30	150							" - Blue
C	10	25		TC22	M-10-25	TA-10	PRS25-10	BR102A	Cath. Bypass - Green
7	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.022	200		TP423	S-4-05	TC-12	484-02	DT4S2	50A5 Plate Bypass
9	.022	200		TP423	S-4-05	TC-12	484-02	DT4S2	Audio Coupling
10	.0033	600		TP406	S-6-003	TC-23	684-003	DT6D3	" "
11	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.2	200		TP429	S-4-2	TC-2	484-2	DT4P2	Line Isolating
13	.0033	600		TP406	S-6-003	TC-23	684-003	DT6D3	Ant. Coupling
14	220	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
15	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	1 Meg.	1	B135127	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		A6121	Not Req.	E	KSS-3	Attach to 20A per instructions
C	Switch		Not Req.	M26	41	SW-A	" " " " "

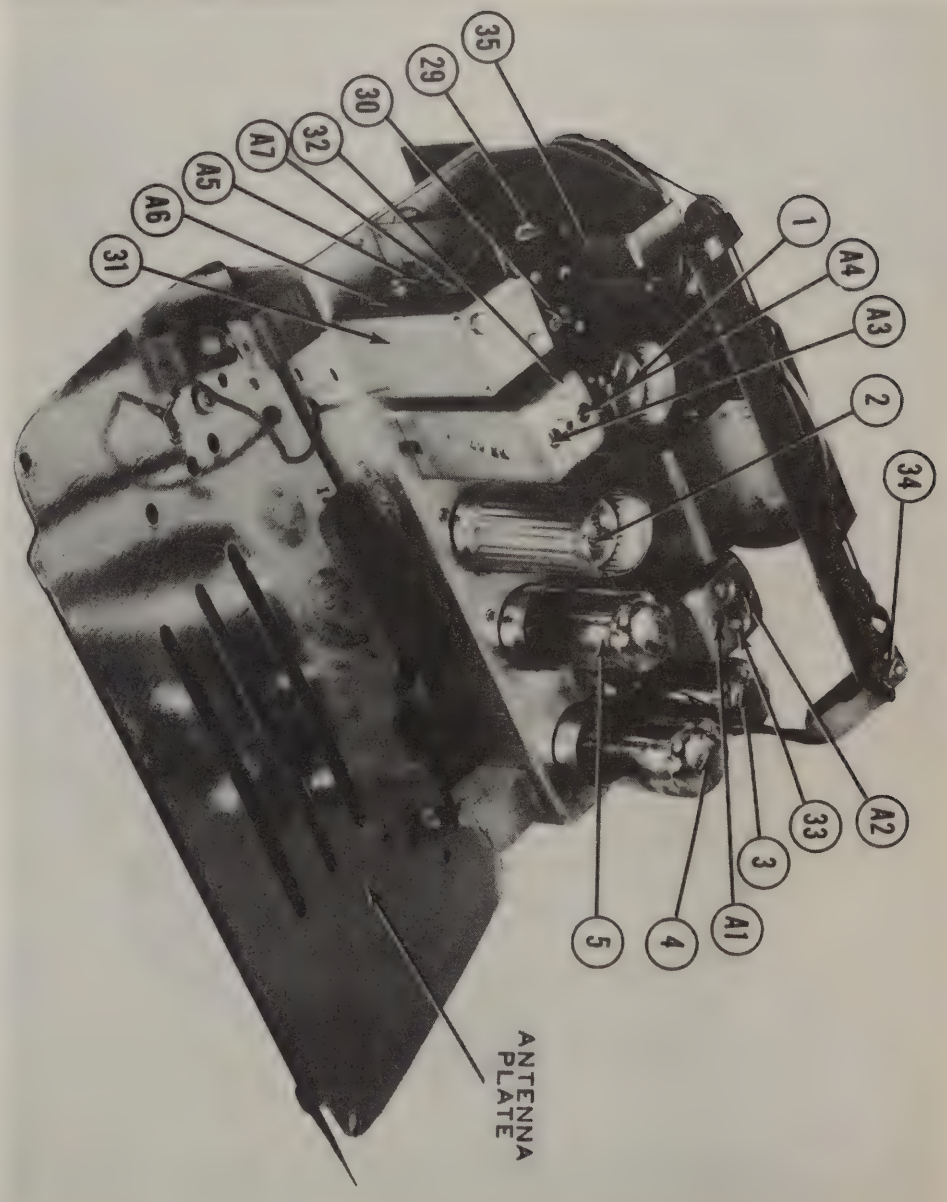
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid Leak
18	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AVC Network
19	3.3 Meg.	½		BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
20	5 Meg.	½		BTS-4.7 Meg	Grn.-Blk.-Blue 1st AF Grid
21	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid Load
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	1200Ω	1		BTA-1200	Br.-Red-Red Filter
25	150Ω	½		BW-½-150	Br.-Grn.-Br. Pilot Light Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
26	2000Ω	4Ω	130Ω	.7Ω		A-3876	T-14S82		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA CROSLEY PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
27	PM	4Ω		ST-113†		†Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
28	4"	1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

R F COILS

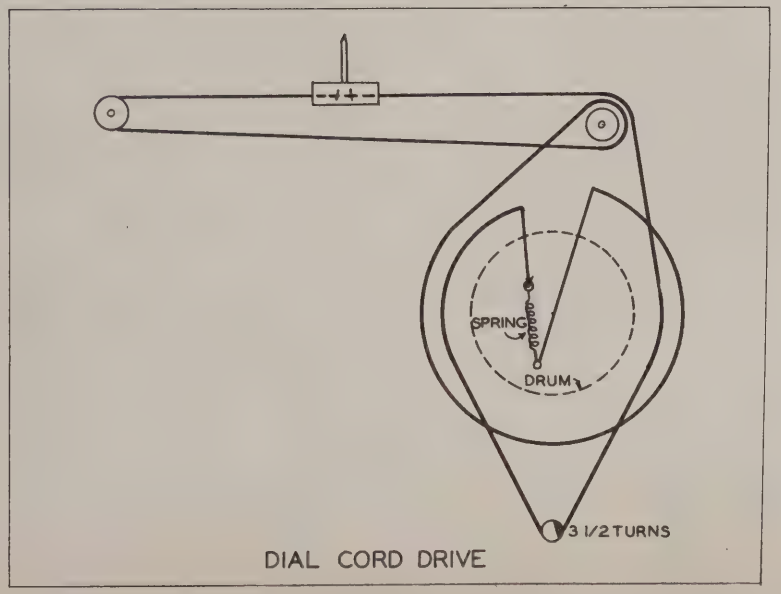
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CROSLEY PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
29	Ant. Coil		8Ω			Items 29, 30 ganged and slug tuned
30	Osc. "		5Ω			
31	Osc. Pad		5Ω			
32	Input IF	11.3Ω	21.8Ω		16-6666	
33	Output IF	23Ω			16-3670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA CROSLEY PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown			Type 47

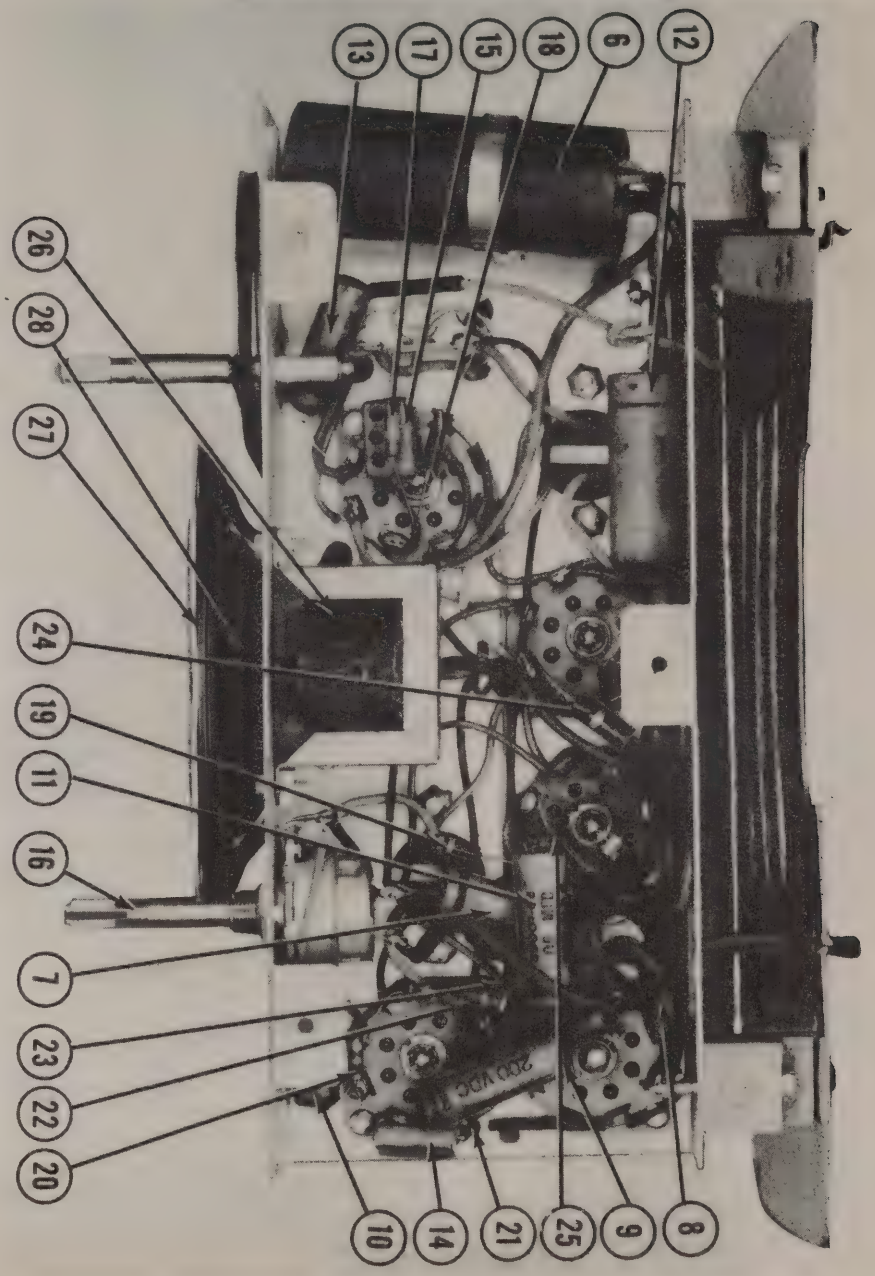
MISCELLANEOUS

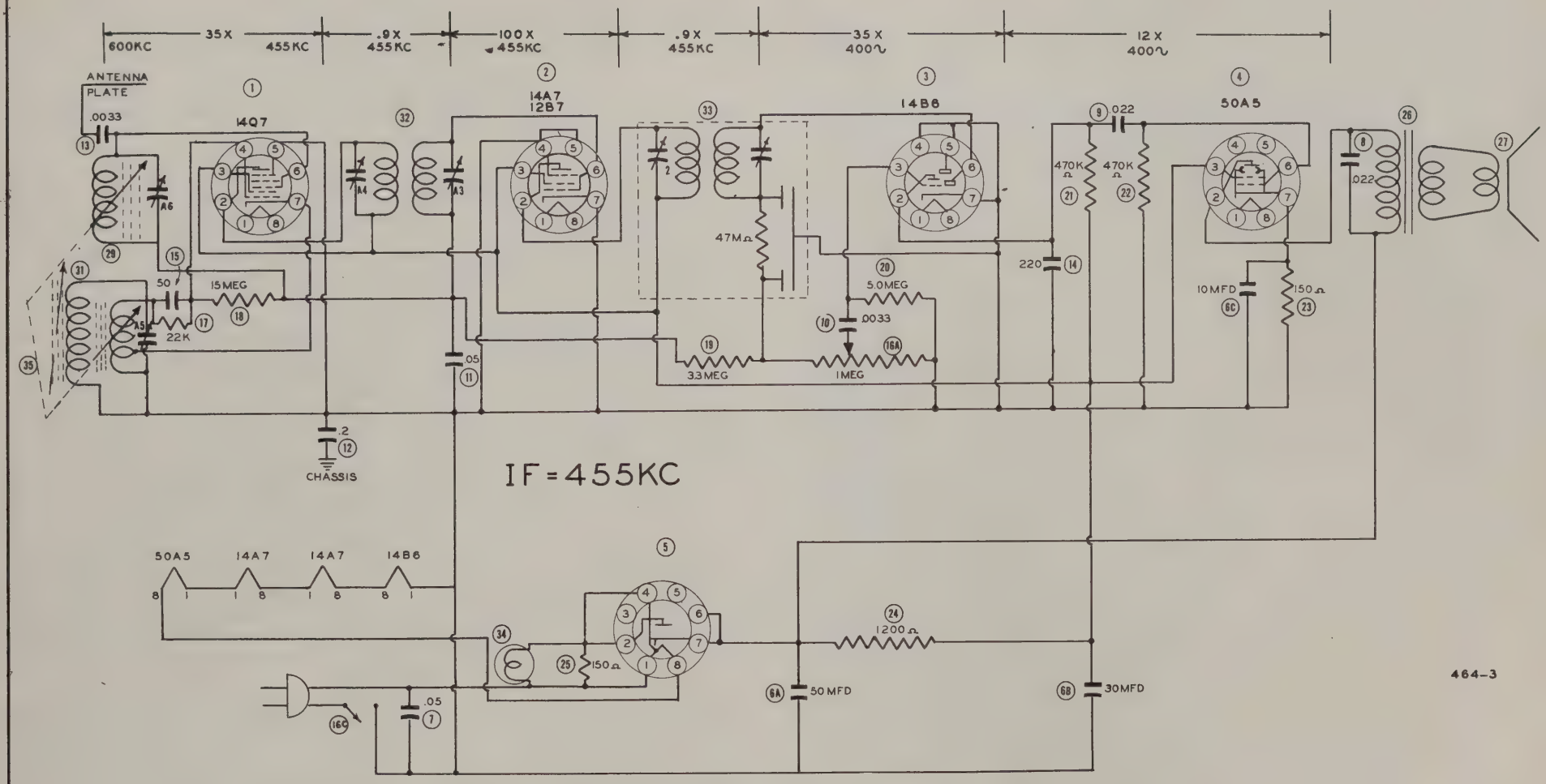
ITEM No.	PART NAME	CROSLEY PART No.	NOTES
35	Gang Tuning Assy		



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	2.65VAC	90 V.DC	90V.DC	-.25VDC	0V.	-.27V.DC	-.27VDC	14 V.AC
2	14A7	39.5VAC	90V. DC	90V.DC	0V.	0V.	-.27V.DC	0V.	26.5VAC
3	14B6	0V.	50V. DC	-.5V.DC	0V.	0V.	-.65V.DC	0V.	14 V.AC
4	50A5	39.5VAC	115V. DC	90V.DC	0V.	0V.	0V.	5.8V.DC	87V.AC
5	35Y4	117V.AC	113V.AC	-.27V.DC	113V.AC	90V.DC	120V.DC	120V.DC	87V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25Ω	800KΩ	800KΩ	19.5KΩ	0Ω	3.5MEG	.75Ω	13Ω
2	14A7	38Ω	800KΩ	800KΩ	0Ω	0Ω	3.5MEG	0Ω	25Ω
3	14B6	0Ω	1.3MEG	5.1MEG	0Ω	0Ω	1 MEG	0Ω	13Ω
4	50A5	38Ω	800KΩ	800KΩ	1 NF	1 NF	410KΩ	160Ω	95Ω
5	35Y4	125Ω	110Ω	3.5MEG	110Ω	800KΩ	800KΩ	800KΩ	95Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DEWALD
MODELS A500, A501, A502, A503

A500

A501

A502

A503

DEWALD
MODELS A500, A501, A502, A503

DEWALD MODEL A500

TRADE NAME	Dewald Model A500, A501, A502, A503
MANUFACTURER	Dewald Radio Mfg. Corp., 440 Lafayette St., New York 3, N.Y.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING - .230 Amps. @ 117V AC
TUNING RANGE—BROADCAST	525-1720KC — **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Use isolating transformer if available. Volume control at maximum and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
Direct	High to ant. lead. Low side in series with .1 MFD to chassis.	455KC	High freq. end of dial (Gang open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	"	1720KC	"	"	A5	" " " "
"	"	1500KC	1500KC	"	A6	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	2002	2N513	M-2x30-150	TA-330	PRS150-40-40	BRL3315	Filter - Yellow
B	30	150							" - Red
7	.05	400	2000-.05	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.02	400	2000-.02	TP423	S-4-02	TC-12	484-02	DT4S2	50L6 Plate Bypass
9	.01	400	2000-.01	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400	2000-.01	TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	400	2000-.05	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
12	.05	400	2000-.05	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.01	400	2000-.01	TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
14	220	500	2001-.0002	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
15	220	500	2001-.0002	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	RF Bypass Diode

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	3002	MR46			Volume Control
B	Shaft		Not Req.	Not Req.			Attach to 16A per instructions
C	Switch		" "	M26			" " " " "

RESISTORS

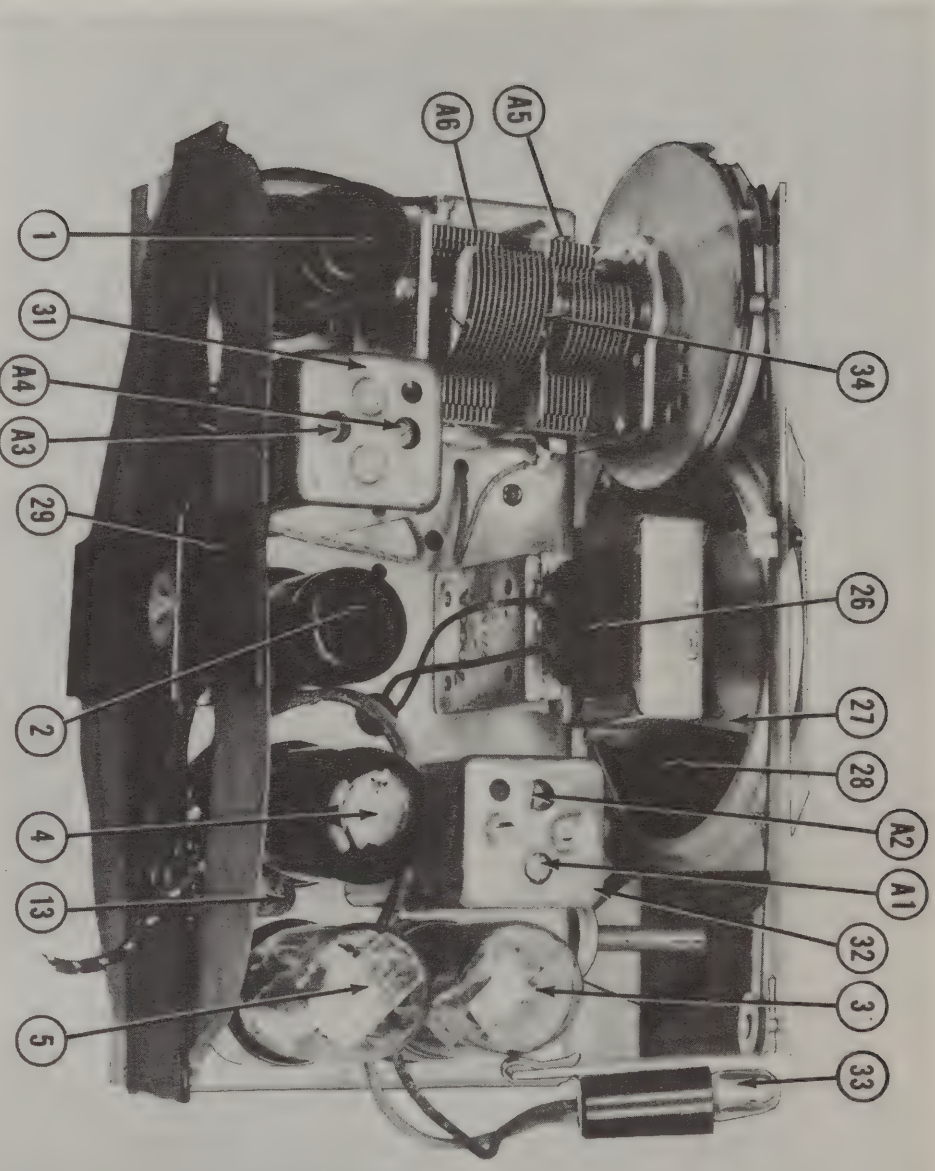
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
17	22KΩ	½	3000-22K	BTS-22K	Red-Red-Or. Osc. Grid
18	2.2 Meg.	½	3000-2.2 Meg	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
19	4.7 Meg.	½	3000-4.7 Meg	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
20	470KΩ	½	3000-470K	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
21	470KΩ	½	3000-470K	BTS-470K	Yl.-Vi.-Yl. Output Grid
22	150Ω	½	3000-150Ω	BW-½-150	Br.-Grn.-Br. Output Cathode
23	2700Ω	2	3001-2700	BT-2-2700	Red-Vi.-Red Filter
24	18Ω	½	3000-18Ω	BW-½-18	Br.-Gray-Blk. Rectifier Ballast
25	680Ω	½	3000-680Ω	BTS-680	Blue-Gray-Br. Osc. Cathode-See Note 1
26	680Ω	½	3000-680Ω	BTS-680	Blue-Gray-Br. Ant. Loading- " " "

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
27	2500Ω	4Ω	160Ω	.55Ω	Part of 7000	A-3876†	T-14S82†		†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA DEWALD PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
28	[illegible]	4Ω	7000	ST-113		
	COIL DIA.	VC DIA.				
29	3-15/16"	9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

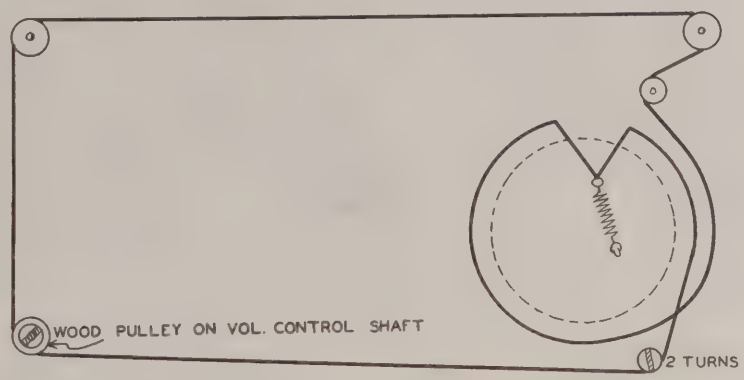
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA DEWALD PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
36	Loop Ant.	0Ω	1.5Ω	1001		
31	Osc. Coil		6.1Ω	1003	*14-1040	*Add 50 MMFD cap. from grid to high side tuning cap.
32	Input IF	16.5Ω	16.5Ω	1000	16-6656	
33	Output IF	39Ω	39Ω	1002	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA DEWALD PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown			Type 47

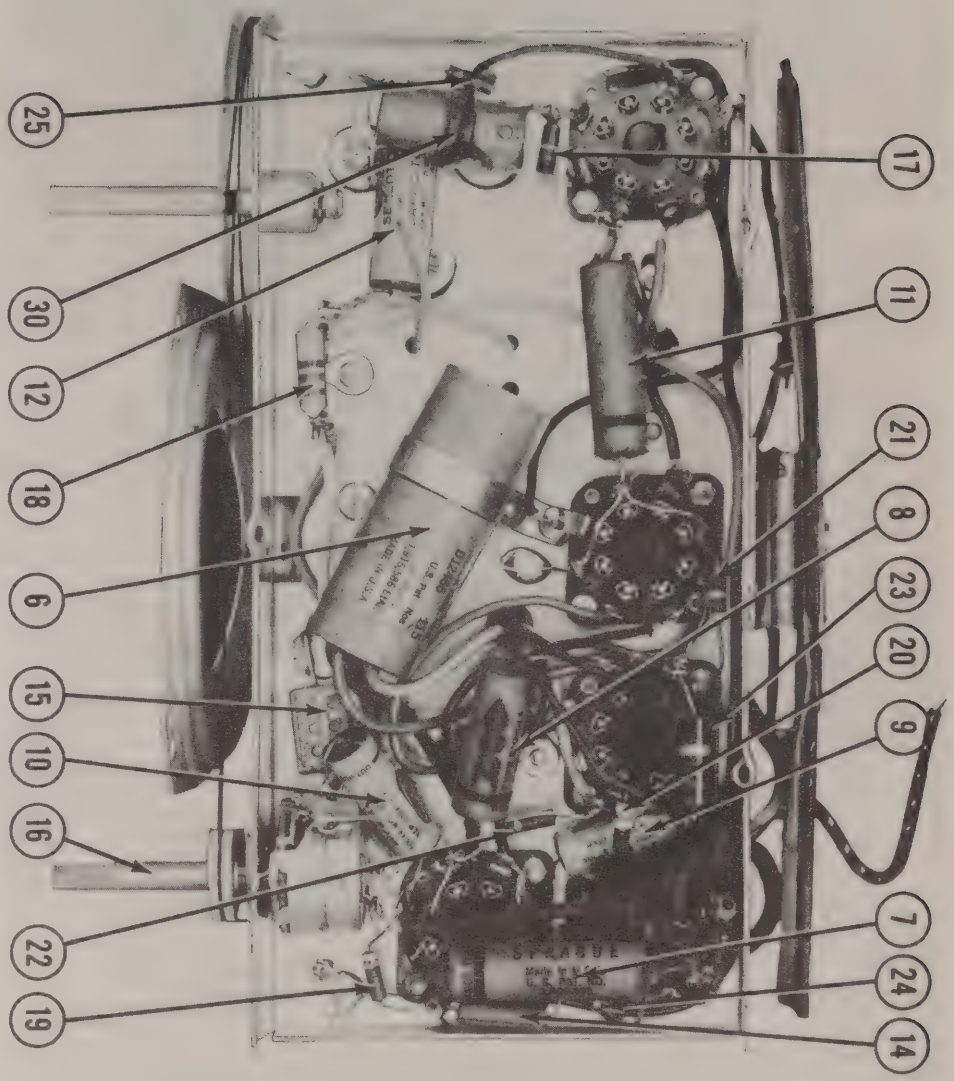
MISCELLANEOUS

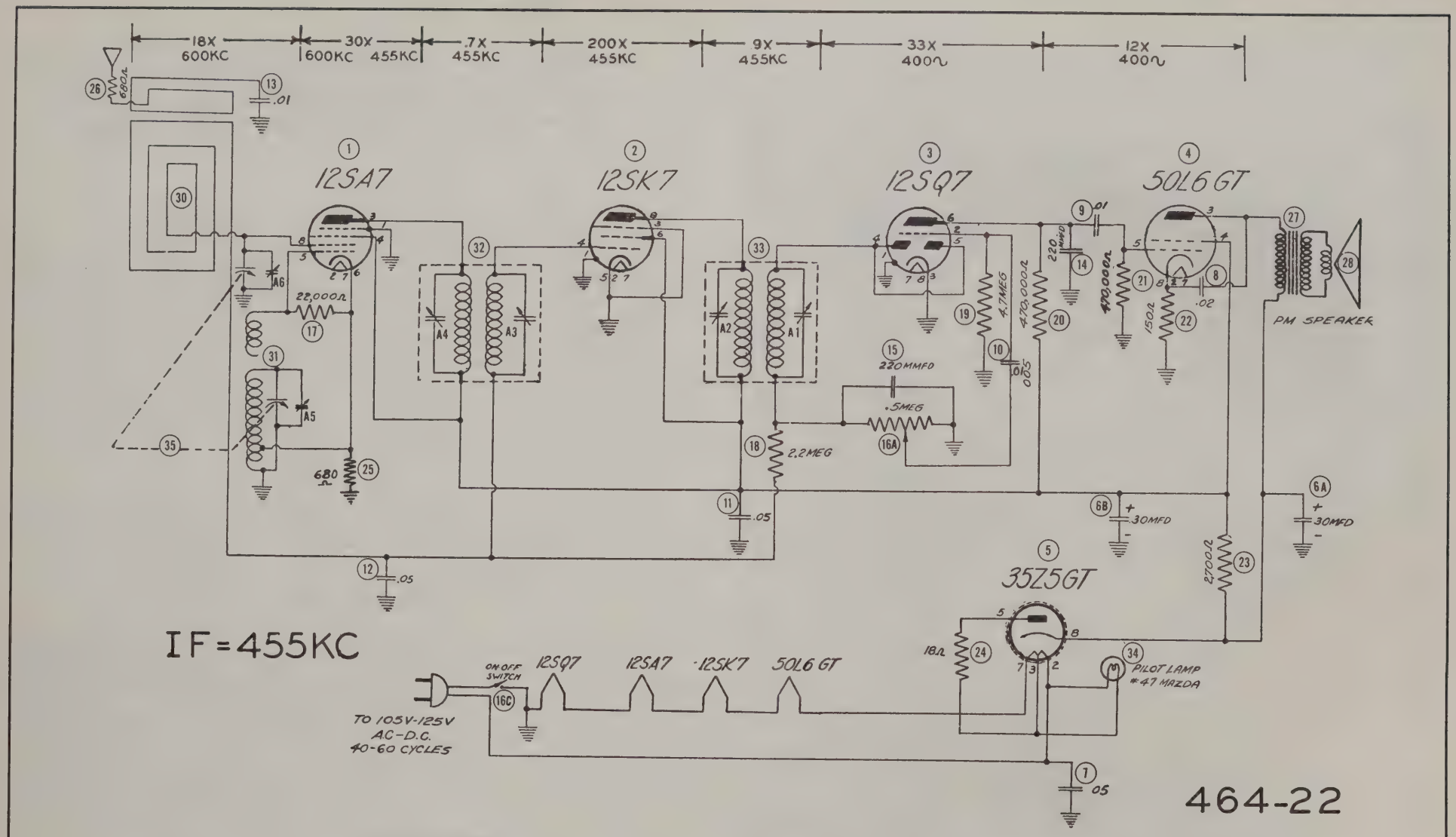
ITEM No.	PART NAME	DEWALD PART No.	NOTES
35	Tuning Cap.	2003	2 Gang Variable Cap.
	Dial Scale	6000	
	Cabinet	4004	Model A-500
	"	4281B	" A-501
	"	4000	" A-502
	"	4016	" A-503
	Knob	4017	Models A-500 & A-503
	"	4010	Model A-501
	"	4003	" A-502



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





464-22

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	25.5V.AC	67V.DC	67V.DC	-.07V.DC	0V.	12.5V.AC	-.2V.DC
2	12SK7	0V.	25.5V.AC	0V.	-.2V. DC	0V.	67V.DC	39V.AC	67V.DC
3	12SQ7GT	0V.	-.45V.DC	0V.	-.45V.DC	-.45V.DC	42V.DC	12.5V.AC	0V.
4	50L6GT	0V.	39V.AC	117V.DC	67V.DC	0V.	0V.	87V.AC	4.8VDC
5	35Z5GT	0V.	117V.AC	113V.AC	0V.	112V.AC	0V.	87V.AC	122V.DC

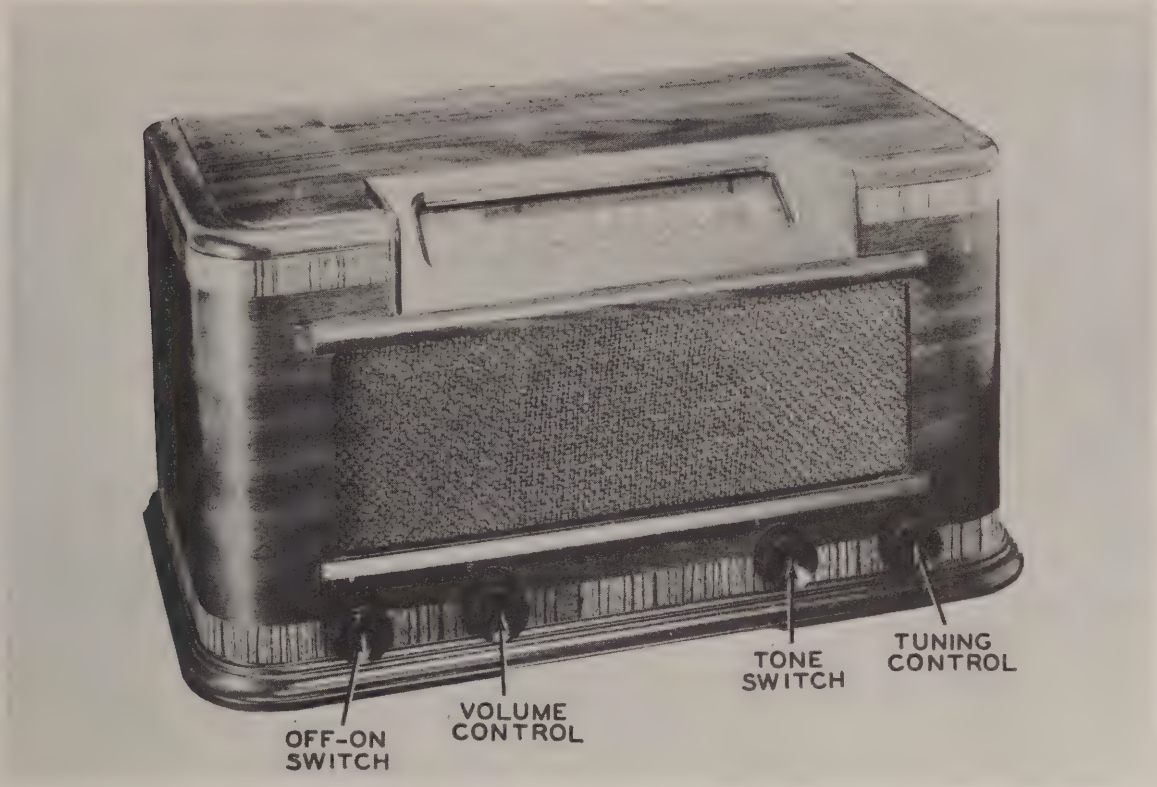
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0∩	24.5 ∩	118K∩	118K∩	22K∩	.5 ∩	12.5 ∩	3.5MEG
2	12SK7	0∩	24.5 ∩	0 ∩	3.5MEG	0∩	118K∩	37∩	118K∩
3	12SQ7GT	0∩	6 MEG	0 ∩	520K∩	520K∩	588K∩	12.5 ∩	0 ∩
4	50L6GT	INF	37∩	115K∩	118K∩	520K∩	INF	82∩	170 ∩
5	35Z5GT	INF	110 ∩	107 ∩	INF	125 ∩	INF	82 ∩	115K∩

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

ECHOPHONE
MODEL EC-600



ECHOPHONE
MODEL EC-600

ECHOPHONE MODEL EC-600

TRADE NAME	Echophone Model EC-600
MANUFACTURER	The Hallicrafters Co., 2611 S. Indiana Ave., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output.
POWER SUPPLY RATING	90 Volt "B" Supply & 1.5 Volt "A" Supply in Pack Form 14.5 MA @ 90 Volts DC plus .275 Amps. @ 1.5 Volts DC
TUNING RANGE—BROADCAST	540-1680KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to lug on A5. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ant. (blue) lead. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	A6	" " " "
"	"	600KC	Tune in 600KC signal.	"	A7	Rock dial on generator and adjust for maximum output.
						Repeat adjustments A5, A6 and A7.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ECHOPHONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ECHOPHONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	10	150		TC42	M-10-150	UT121	PRS150-12	BR1215	RF Bypass Pwr. Supp.
6	.01	200		TP421	S-4-01	TC-11	484-.01	DT4S1	Tone Compensation
7	.005	600		TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
8	.02	200		TP423	S-4-02	TC-12	484-.02	DT4S2	Audio Screen Bypass
9	.005	600		TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
10	.01	200		TP421	S-4-01	TC-11	484-01	DT4S1	IF Screen Bypass
11	.02	200		TP423	S-4-02	TC-12	484-.02	DT4S2	AVC Filter
12	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Vol. Cont.
13	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Diode
14	680	500		MC251	M0.3-37	1FM-37	1469-.0007	1W5T7	Conv. Screen Bypass
15	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Osc. Grid Capacitor
16	680	500		MC251	M0.3-37	1FM-37	1479-.0007	1W5T7	AVC Filter
17	330	500		MC241	M0.5-33	MS-33	1468-.0003	5W5T3	Ant. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECHOPHONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1	25-A567	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 18A per instructions

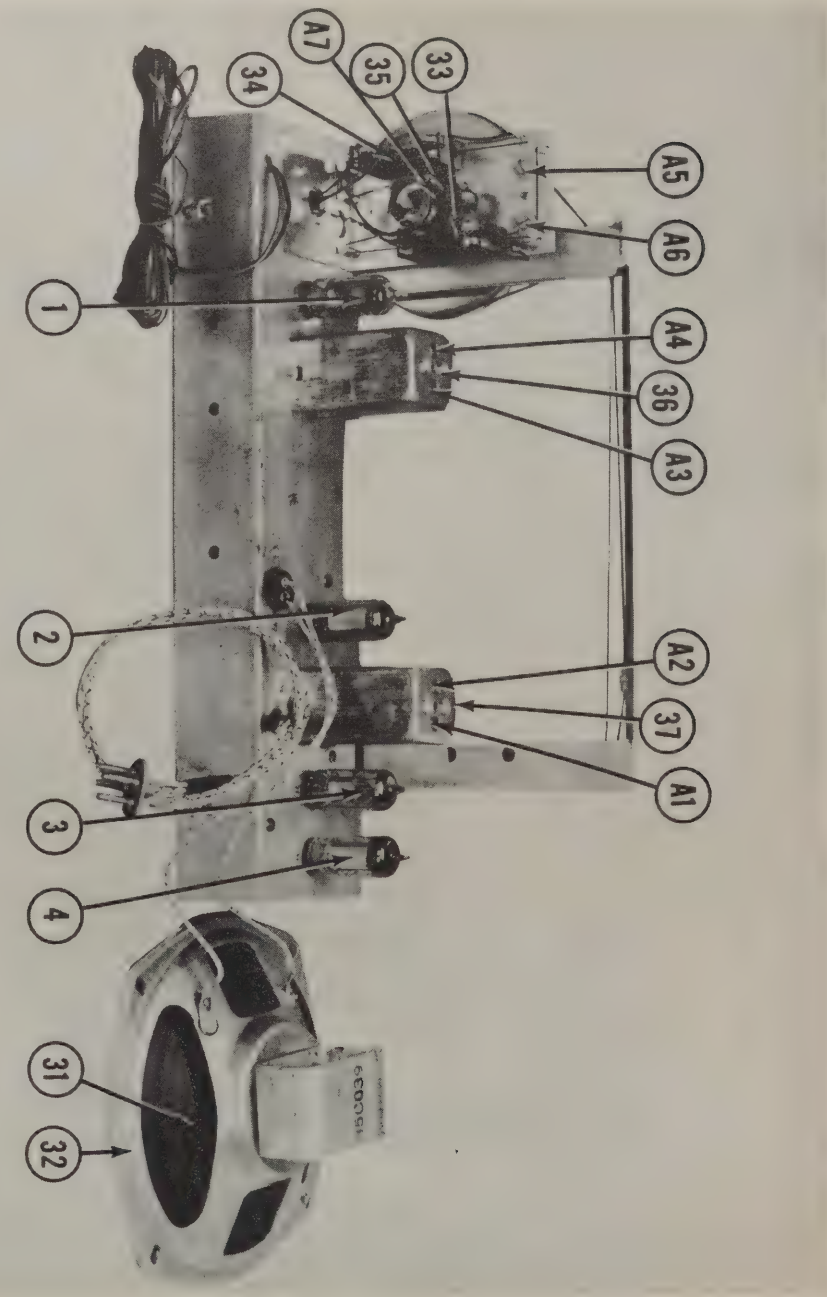
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECHOPHONE PART No.	IRC PART No.	IDENTIFICATION CODES
19	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Osc. Grid
21	18KΩ	½		BTS-18K	Br.-Gray-Or. Screen Dropping
22	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. AVC Network
23	68KΩ	½		BTS-68K	Blue-Gray-Or. IF Screen Dropping
24	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode Load
25	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
26	4 Meg.	½		BTS-4 Meg.	Yl.-Vlk.-Grn. 1st AF Screen Dropping
27	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
29	330Ω	½		BW-½-330	Or.-Or.-Br. Fixed Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ECHOPHONE PART No.	STANCOR PART No.	THORDAR'N PART No.	INSTALLATION NOTES
30	11000Ω	3.1Ω	350Ω	.32Ω	55B085	A-3831	T-81S01	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

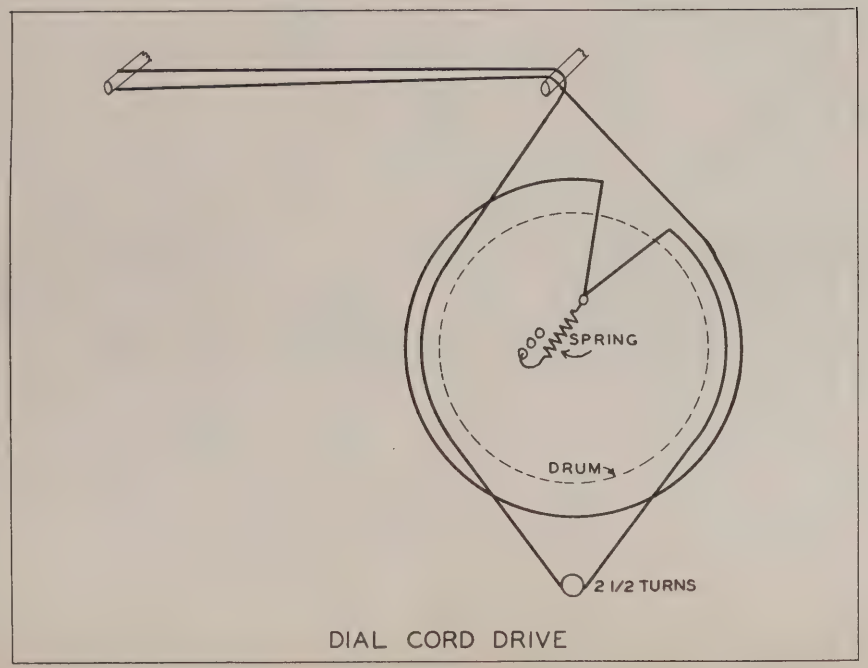
ITEM No.	RATINGS		REPLACEMENT DATA ECHOPHONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
31	PM	3.1Ω	85C039	ST-108		
	CONE DIA.	VC DIA.				
32	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ECHOPHONE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
33	Ant. Coil	11.1Ω				
34	Osc. "	7.4Ω				
35	Osc.Pad Coil	7.5Ω				
36	Input IF	22Ω	21Ω		16-6658	
37	Output "	21.7Ω	21.6Ω		16-3660	

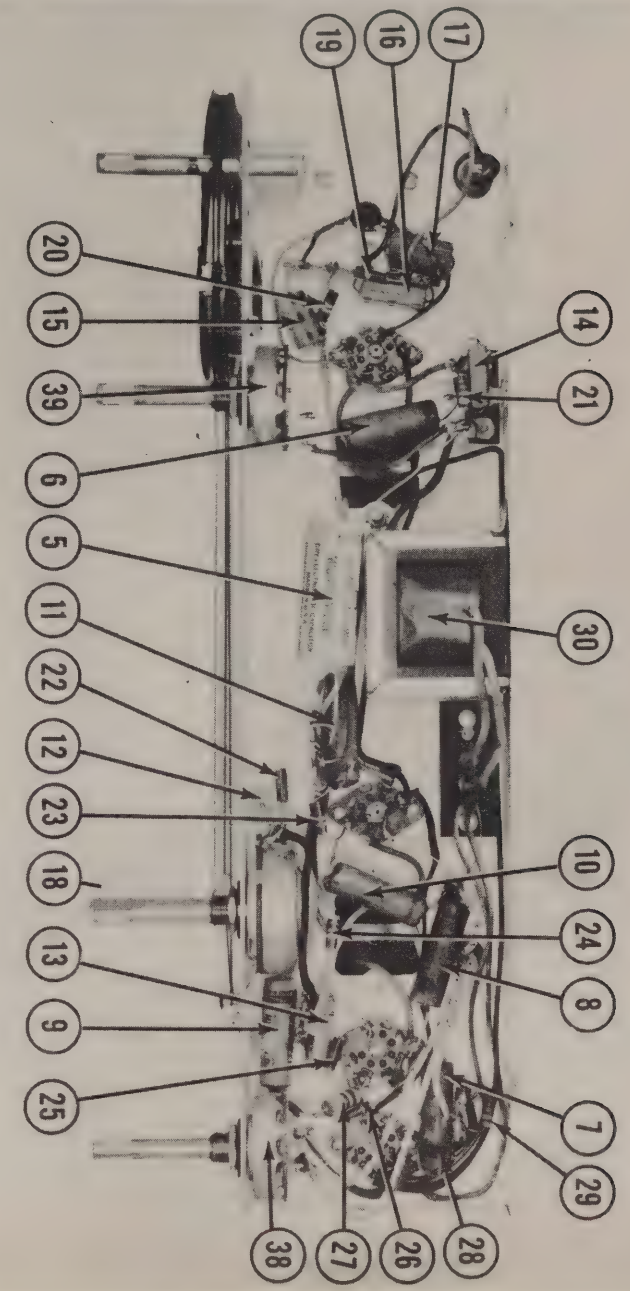
MISCELLANEOUS

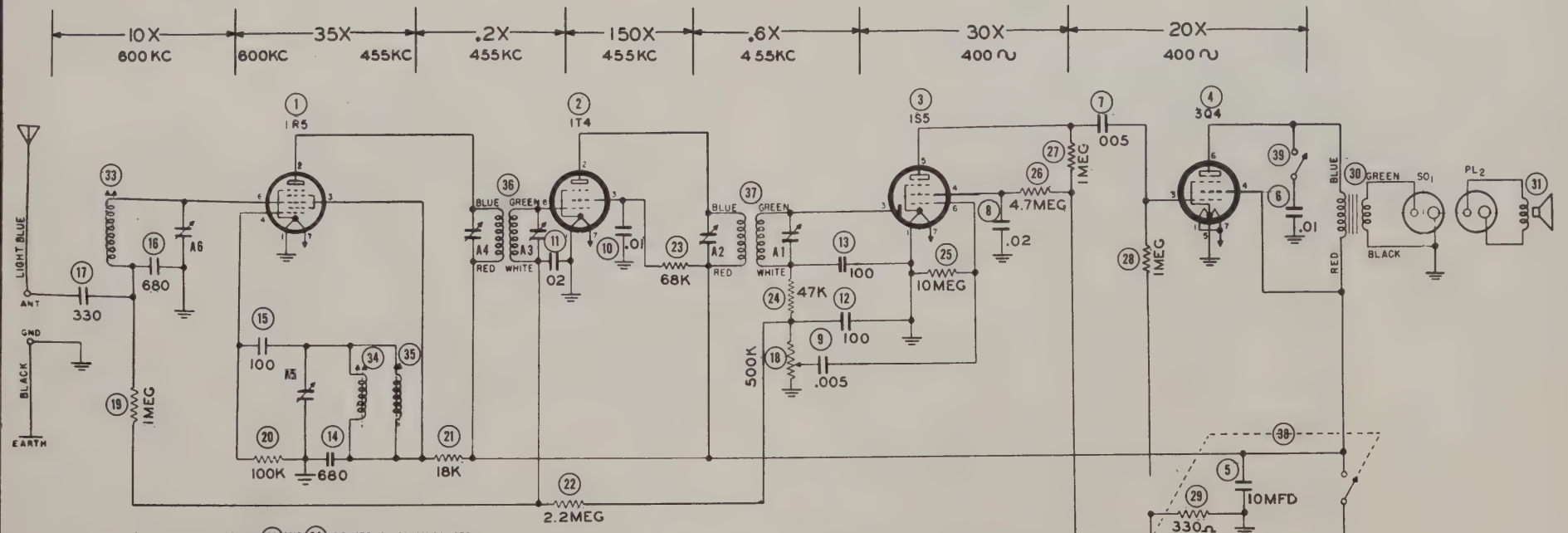
ITEM No.	PART NAME	ECHOPHONE PART No.	NOTES
38	Power Switch		DPST
39	Tone Switch		SPST



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





NOTE. TUNING SLUGS FOR (33) AND (34) ARE MECHANICALLY GANGED

EARLY PRODUCTIONS
(24) WAS IN SERIES WITH (9) AND (25).
(13) WAS CONNECTED FROM PIN 6 OF 1S5 TO GROUND.

VOLTAGE READINGS

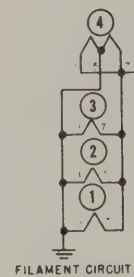
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	90V.DC	50V.DC	-2.5V.DC	0V.	0V.	1.5V.DC
2	1T4	0V.	90V.DC	44V.DC	0V.	0V.	0V.	1.5V.DC
3	1S5	0V	0V	-.25V.DC	16V.DC	21V.DC	0V.	1.5V.DC
4	3Q4	1.5V.DC	0V.	-.4V.DC	90V.DC	0V.	85V.DC	1.5V.DC

RESISTANCE READINGS

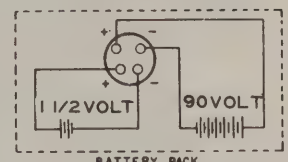
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	208KΩ	190KΩ	108KΩ	1NF	4MEG	*
2	1T4	*	190KΩ	258KΩ	1NF	1NF	2.9MEG	*
3	1S5	*	1NF	580KΩ	4.9MEG	1.2MEG	8MEG	*
4	3Q4	*	1NF	1MEG	190KΩ	0Ω	190KΩ	*

* DO NOT USE OHMMETER TO CHECK FILAMENT RESISTANCE.

IF=455KC



FILAMENT CIRCUIT WIRING



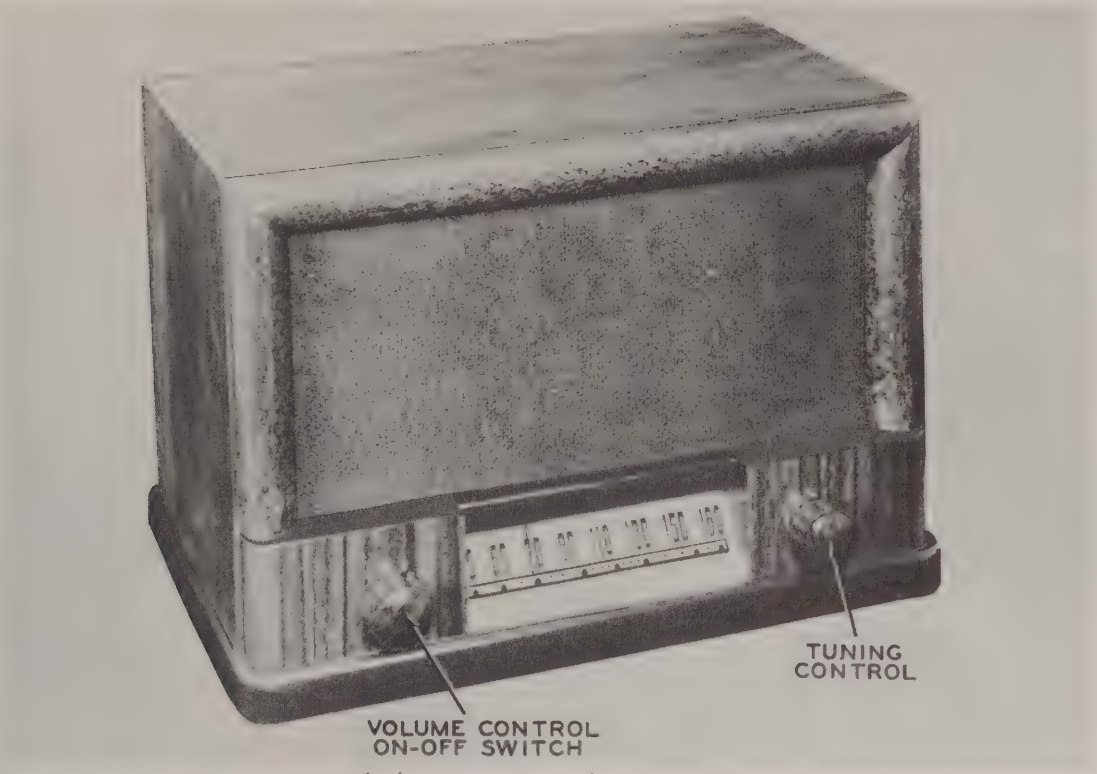
BATTERY PACK

464-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to ground.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

E-L (ELECTRONIC LABS.)
MODEL 2701



E/L (ELECTRONIC LABS.) MODEL 2701

TRADE NAME	E/L (Electronic Labs.) Model 2701
MANUFACTURER	Electronic Laboratories, Inc., 122 West New York St., Indianapolis, Ind.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES(SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-120 Volts AC-DC RATING - .265 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1620KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Before aligning rotate tuning shaft until carriage is at top stop position. Space oscillator coil slug 1-5/32" out from top of coil form and RF slug 1-29/64" out from top end of RF coil winding. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. If regeneration prevails with receiver loop in position it will be with set in cabinet, A5 is incorrectly set and should be re-adjusted.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #4 (grid) 12SK7 RF tube. Low side to chassis.	455KC	High freq. end of dial (slugs out of coils to top stop position).	Across voice coil	A1,A2, A3,A4.	Adjust A5 to open position. Adjust A1, A2, A3 and A4 for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to chassis and decrease dummy ant. to prevent excessive hum modulation.
"	"	"	"	"	A5	Adjust for minimum output. Use isolation instructions as given for IF alignment.
400Ω res.	External antenna and ground leads.	1620KC	"	"	A6	Adjust for maximum output.
"	"	1400KC	Tune in 1400 KC signal. (pointer approx. 1" from stop end at right)	"	A7	" " " "
"	"	700KC	Tune in 700KC signal. (Pointer approx. 1" from stop at left end.)	"	A8	Adjust tuning core for max. output. (do not disturb carriage position). If more than one turn required repeat adjustments A7 at 1400KC and A8 at 700KC until correct alignment is reached.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ELECT. LABS. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L68GT	35L68GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ELECT. LABS. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	C-466A	2N511	M-2x40-150	TA-440	PRS150-40-40	BR4415	Filter - Red
B	40	150							" - "
8	.1	400	C-471A	TP428	S-4-1	TC-1	484-1	DT4P1	Line Filter
9	.1	200	C-460A	TP428	S-4-1	TC-1	484-1	DT4P1	RF Bypass Pwr. Supp.
10	.02	200	C-496A	TP423	S-4-02	TC-12	484-02	DT4S2	35L6 Plate Bypass
11	.01	400	C-468A	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
12	.005	400	C-480A	TP408	S-6-005	TC-25	484-005	DT6D5	" "
13	.01	400	C-500A	TP421	S-4-01	TC-11	484-01	DT4S1	Conv. Cathode
14	.2	400	C-497A	TP429	S-4-2	TC-2	484-2	DT4P2	Line Isolating
15	.1	200	C-460A	TP428	S-4-1	TC-1	484-1	DT4P1	AVC Filter
16	250	350	C-494A	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Tone Compensation
17	250	350	C-494A	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	RF Bypass Diode
18	50	500	C-495A	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
19	1000	350	C-493A	MC255	M0.3-21	1FM-21	1468-001	5W5D1	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ELECT. LABS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1	W-444A	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

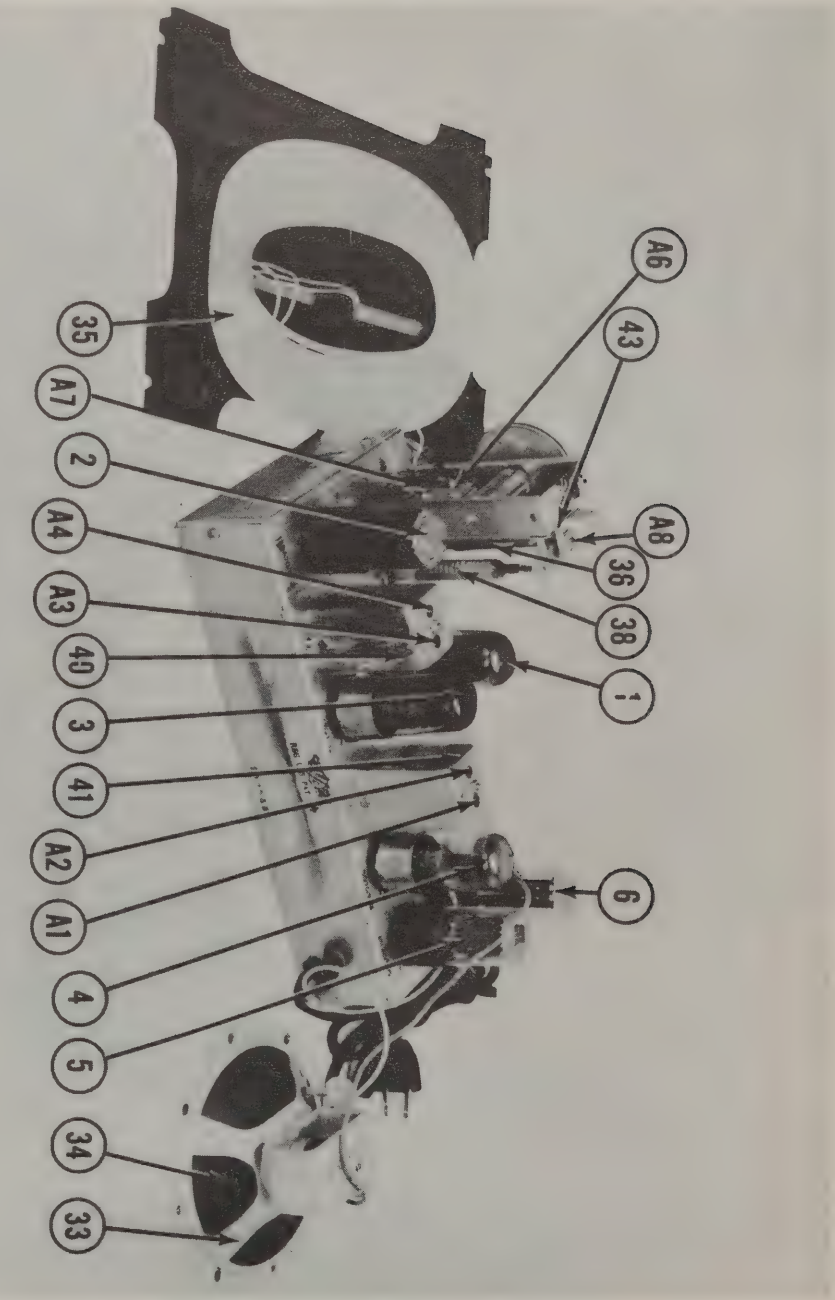
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ELECT. LABS. PART No.	IRC PART No.	IDENTIFICATION CODES
21	4700Ω	½	W-452A	BTS-4700	Yl.-Vl.-Red RF Plate Load
22	100KΩ	¼	W-439A	BTS-100K	Br.-Blk.-Yl. Converter Grid-See Note 1
23	22KΩ	¼	W-437A	BTS-22K	Red-Red-Or. Osc. Grid
24	47KΩ	¼	W-438A	BTS-47K	Yl.-Vl.-Or. Diode Load
25	2.2 Meg.	¼	W-442A	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	10 Meg.	¼	W-443A	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
27	220KΩ	¼	W-440A	BTS-220K	Red-Red-Yl. 1st AF Plate Load
28	470KΩ	¼	W-441A	BTS-470K	Yl.-Vl.-Yl. Output Grid
29	150Ω	½	W-415A	BW-½-150	Br.-Grn.-Br. Output Cathode
30	1000Ω	1	W-433A	BTA-1000	Br.-Blk.-Red Filter
31	50Ω	10	W-43A	AB-50	Line Dropping

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ELECT. LABS PART No.	STANCOR PART No.	THORDAR'N PART No.	INSTALLATION NOTES
32	1900Ω	3.5Ω	192Ω	.75Ω	T-1368A	A-3876†	T-14882†	†Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA ELECT. LABS. PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
33	PM	3.5Ω	H-244A	ST-107		
	CONE DIA.	VC DIA.				
34	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

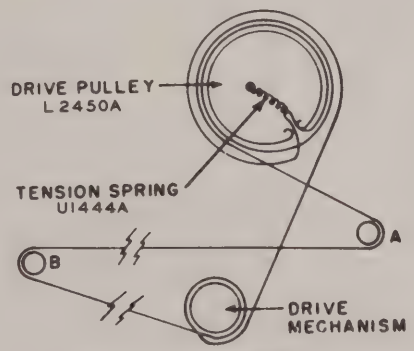
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ELECT. LABS. PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
35	Loop Ant.	.1Ω	.8Ω	A2154B		
36	Ant. Coil	7.5Ω	1Ω	A-2143E		Items 36, 38 ganged and slug tuned.
37	Wave Trap	44Ω		T-1372A		
38	Osc. Coil	.5Ω	3.3Ω	A-2143E		
39	RF Choke	23.5Ω		T-1365A		
40	Input IF	15Ω	15.2Ω	T-1361A	16-3658	
41	Output IF	15.2Ω	15.2Ω	T-1362A	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ELECT. LAB. PART No.		INSTALLATION NOTES
42	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

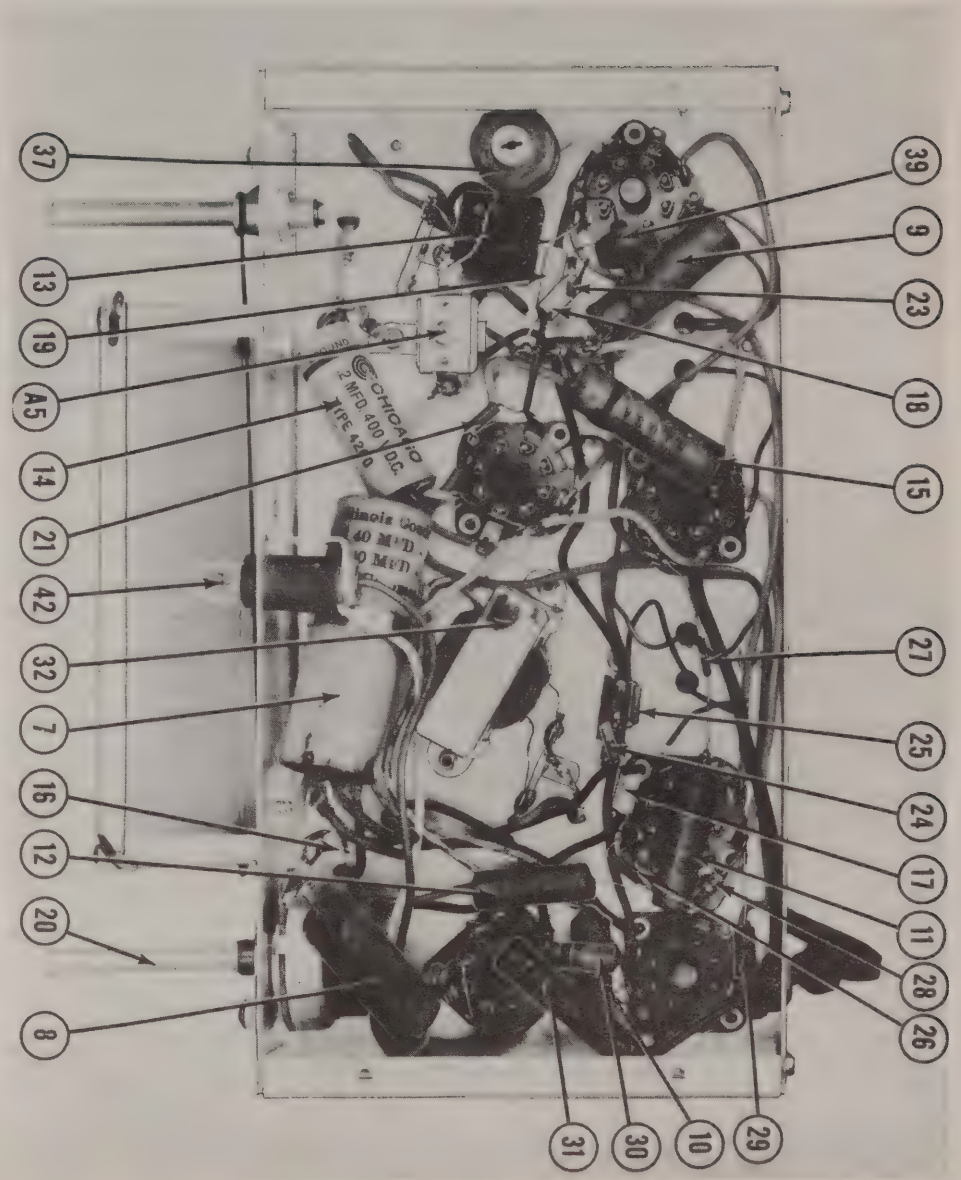
ITEM No.	PART NAME	ELECT. LABS. PART No.	NOTES
43	Tun. Assby.	A-2143E	
	Glass Dial	H-247B	
	Pointer	U-1461A	

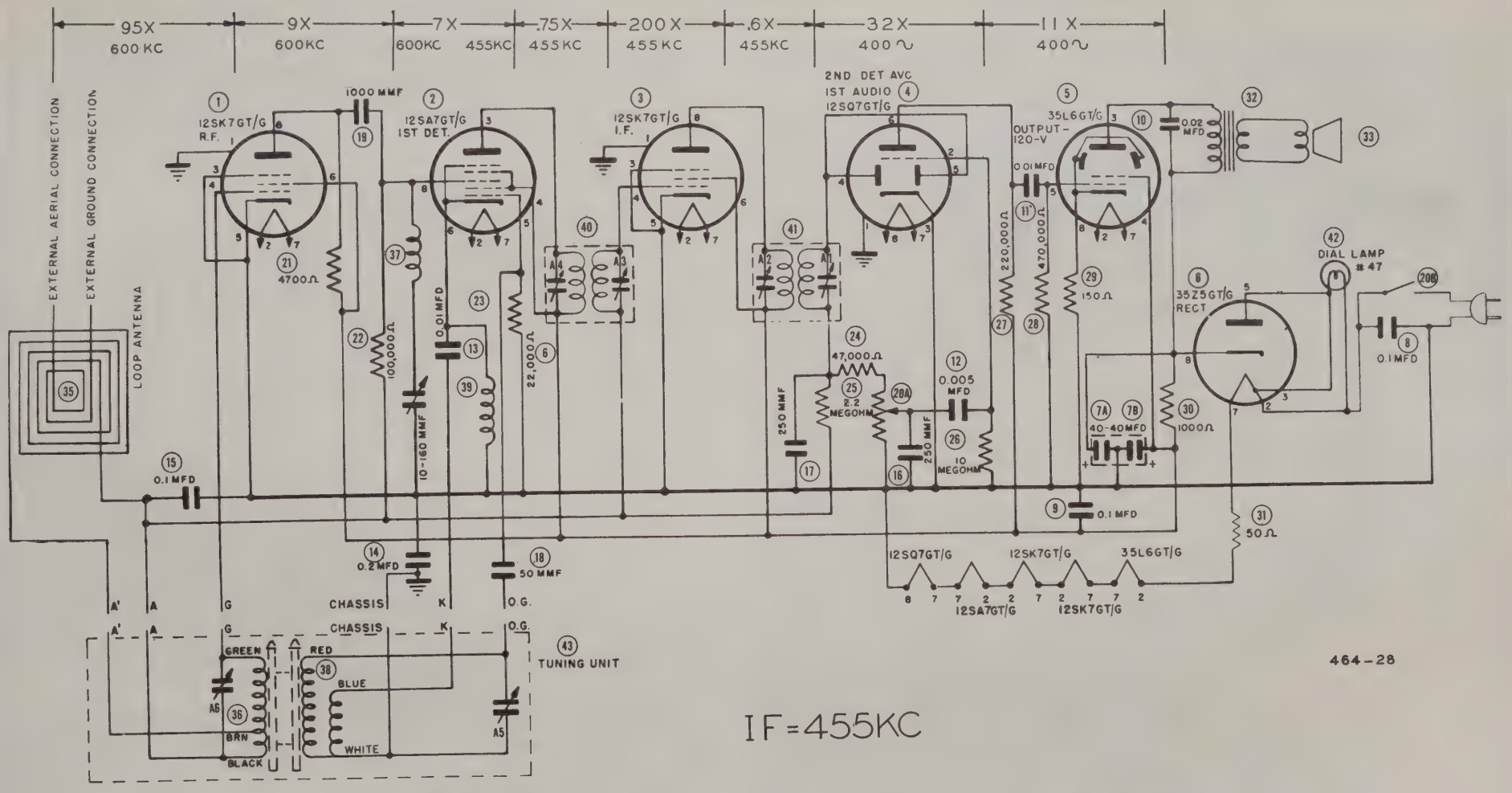


DRIVE CORD REPLACEMENT

Turn the tuner to the fully open position. Use a new cord 50" long and tie one end to the tension spring. Fasten the other end of the tension spring to the drive pulley. Pass cord through slot in pulley ring; add spring tension and continue one and one-half turns counterclockwise over top of pulley. Then pass cord around idler pulley A, starting over top and going around clockwise. Pass cord over idler pulley B, starting over top and going around counterclockwise. Wind one full turn counterclockwise around drive mechanism. Then wind one full turn counterclockwise around drive pulley, pass through slot in pulley and tie string to tension spring. Cut off excess string. Attach dial pointer to cord.

CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	22V.AC	0V.	-.4V.DC	0V.	78V.DC	33.5V.AC	35V.DC
2	12SA7GT	0V.	22V.AC	78V.DC	78V.DC	-3.6V.DC	.25V.DC	10.6V.AC	0V.
3	12SK7GT	0V.	33.5V.AC	0V.	-.37V.DC	0V.	78V.DC	44.5V.AC	78V.DC
4	12SQ7GT	0V.	-.7V. DC	0V.	-.35V.DC	-.35V.DC	57V DC	10.6V.AC	0V.
5	35L6GT	0V.	78V.AC	115V.DC	78V.DC	0V.	0V.	44.5V.AC	4.2V.DC
6	35Z5GT	0V.	117V.AC	112V.AC	0V.	112V.AC	0V.	86V.AC	120V.DC

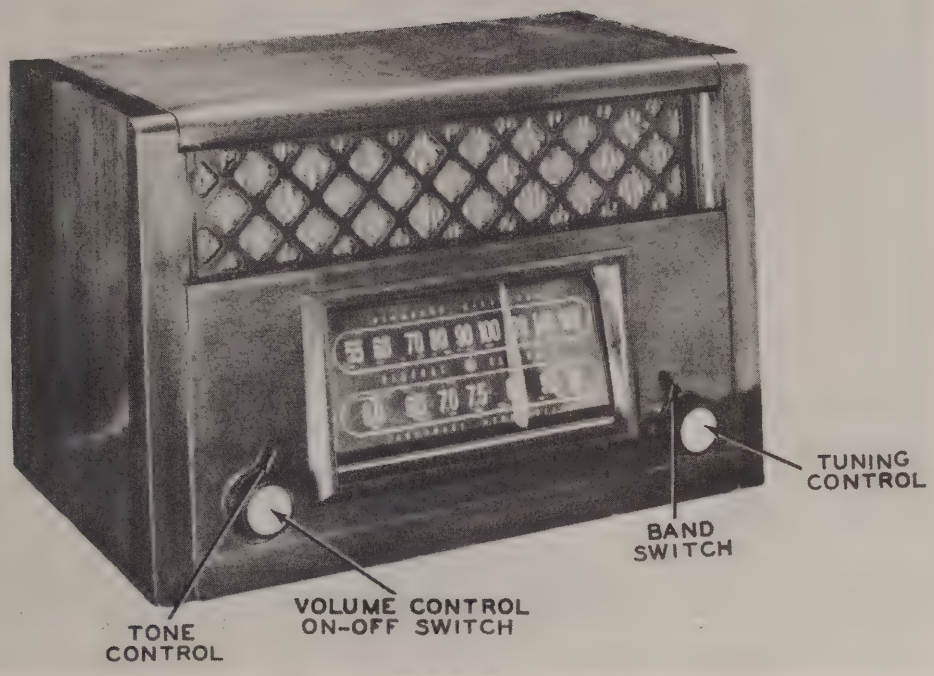
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	INF	22.5Ω	0Ω	2.9MEG	0Ω	96KΩ	33Ω	100KΩ
2	12SA7GT	INF	22.5Ω	96KΩ	96KΩ	19KΩ	22Ω	11.5Ω	INF
3	12SK7GT	INF	33Ω	0Ω	2.9MEG	0Ω	96KΩ	44Ω	96KΩ
4	12SQ7GT	INF	6MEG	0Ω	530KΩ	530KΩ	316KΩ	11.5Ω	0Ω
5	35L6GT	INF	75Ω	95KΩ	96KΩ	470KΩ	INF	44Ω	135Ω
6	35Z5GT	INF	155Ω	152Ω	INF	152Ω	INF	128Ω	95KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL ELECTRIC
MODELS 219, 220, 221



GENERAL ELECTRIC MODEL 221

TRADE NAME	General Electric Models 219, 220, 221
MANUFACTURER	General Electric Co., Bridgeport, Conn.
TYPE SET	2 Band AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .330 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC — **SHORT WAVE** 6MC-10MC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use isolation transformer if available, if not, use isolating capacitor in series with low side signal generator lead. Also for steps 1 and 2 decrease dummy antenna to .001 MFD to prevent excessive hum modulation. Use insulated alignment screwdriver for adjusting. Check dial pointer as shown on dial diagram before proceeding with RF alignment.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #4 (grid) of 12SG7. Low side to B-.	455KC	BC	Approx. 1500 KC	Across voice coil	A1,A2.	Adjust for maximum output
"	High side to pin #8 (grid) of 12SA7. Low side to B-.	"	"	"	"	A3,A4.	" " " " Repeat adjustments A1, A2, A3 and A4 for maximum output.
60 MMFD	High side to ant terminal. Low side to chassis.	1500KC	"	1500KC	"	A5,A6, A7.	With loop mounted on chassis and chassis in cabinet adjust in order for maximum output. If two peaks are obtained when adjusting A5, correct one is with trimmer plates farthest apart.
.05 MFD	High side to pin #8 (grid) of 12SA7. Low side to B-.	9.5MC	SW	9.5MC	"	A8	Remove chassis carefully from cabinet so as not to disturb dial setting and adjust for maximum output. If two peaks are obtained, correct one is with trimmer plates closest together.
400Ω res.	High side to ant terminal. Low side to chassis.	"	"	"	"	A9	Adjust for maximum output Replace chassis in cabinet and check A9 for correct setting.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GEN. ELECTRIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SG7	12SG7	8BK	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	RCE-001	FP311	DY-2x50-150/40-25	EL-452	AF1010D	UP6CJ41	▲ Filter
B	50	150					PRS25-50		■ "
C	40	25							▲ Cath. Bypass
8	.05	600	RCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	Line Filter
9	.01	600	RCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	35L6 Plate Bypass
10	.005	600	RCC-004	TP408	S-6-005	TC-25	684-005	DT6D5	Tone Compensation
11	.01	600	RCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
12	.01	600	RCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	" "
13	.1	600	RCC-046	TP418	S-6-1	TC-1	684-1	DT6P1	Feedback
14	.005	600	UCC-039	TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
15	.05	600	UCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	IF Screen Bypass
16A	.01	600	UCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	Fixed Padder SW
B	.005	600	UCC-039	TP408	S-6-005	TC-25	684-005	DT6D5	" " " *
17	.05	600	UCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	AVC Filter
18	.1	600	RCC-046	TP418	S-6-1	TC-1	684-1	DT6P1	Line Isolating
19	.05	600	UCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	RF Screen Bypass
20	.002	600	UCC-036	TP405	S-6-002	TC-22	684-002	DT6D2	Ant. Coupling
21	22	500	RCU-108	MC220	M0.5-425	MS-425	1468-000025	5W5Q2	SW Antenna
22	330	500	RCU-115	MC241	M0.5-33	1FM-335	1468-0003	5W5T3	Audio Plate Bypass
23	100	500	RCU-112	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Diode
24	330	500	RCU-115	MC241	M0.5-33	1FM-335	1468-0003	5W5T3	" " "
25	47	500	RCU-110	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
26	360	500	RCU-164	MC243	M0.5-34	1FM-34	1468-0004	5W5T4	Fixed Padder SW
27	56	500	RCU-053	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Fixed Tuning Pri.

*Used in some models.

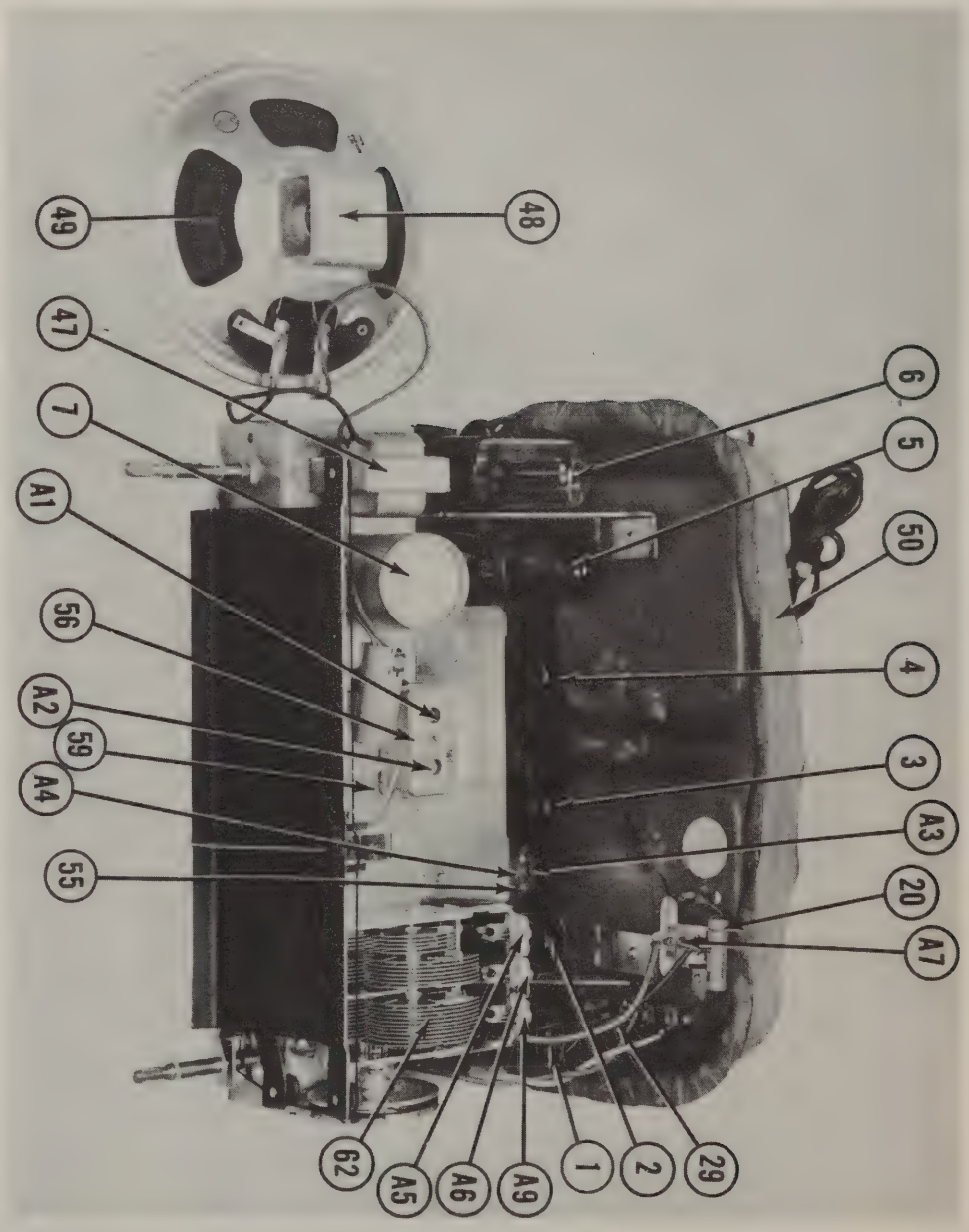
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	2 Meg.	1	RRC-004	MK403	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 28A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. ELECTRIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
29	470Ω	½	URD-041	BTS-470	Yl.-Vl.-Br. Ant. Loading
30	470KΩ	½	URD-113	BTS-470K	Yl.-Vl.-Yl. Line Isolating
31	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. Osc. Grid
32	10 Meg.	½	URD-145	BTS-10 Meg.	Br.-Blk.-blue AVC Network
33	22Ω	½	URD-009	BW-½-22	Red-Red-Blk. Series Tuned Circuit
34	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
35	470Ω	½	URD-041	BTS-470	Yl.-Vl.-Br. IF Plate Filter
36	47KΩ	½	URD-089	BTS-47K	Yl.-Vl.-Or. Diode Filter
37	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. Diode Load
38	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Feedback
39	5.6 Meg.	½	URD-139	BTS-5.6 Meg.	Grn.-Blue-Grn. 1st AF Grid
40	470KΩ	½	URD-113	BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONTINUED)

41	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Output Grid
42	150Ω	½	URD-029	BW-½-150	Br.-Grn.-Br. Output Cathode
43	39Ω	½	URD-015	BW-½-39	Or.-White-Blk. Feedback
44	1200Ω	2	URF-051	BT-2-1200	Br.-Red-Red Filter
45	18Ω	1	URE-007	BW-1-18	Br.-Gray-Blk. Rectifier Ballast
46	150Ω	½	URD-029	BW-½-150	Br.-Grn.-Br. IF Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GEN. ELECTRIC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
47	1900Ω	135Ω	4.3Ω	.45Ω	RTO-003				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GEN. ELECTRIC PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
48	PM	4.3Ω	ROP-005			
	CONE DIA.	VC DIA.				
49	5-1/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GEN. ELECTRIC PART No.	MEISSNER PART No.	
50	Loop Ant.	0Ω	.3Ω	RLL-003		
51	BC RF Coil	68Ω	4.8Ω	RLB-001		Items 51, 52 on same form
52	SW Ant. "	2.3Ω	0Ω	RLB-001		
53	BC Osc. "	1Ω	8Ω	RLC-003		Items 53, 54 on same form
54	SW " "		0Ω	RLC-003		
55	Input IF	5.5Ω	5.6Ω	RTL-001		
56	Output IF	5.8Ω	5.8Ω	RTL-002		
57	RF Line Choke	3.4Ω		RLI-001		
58	" " "	3.4Ω		RLI-001		

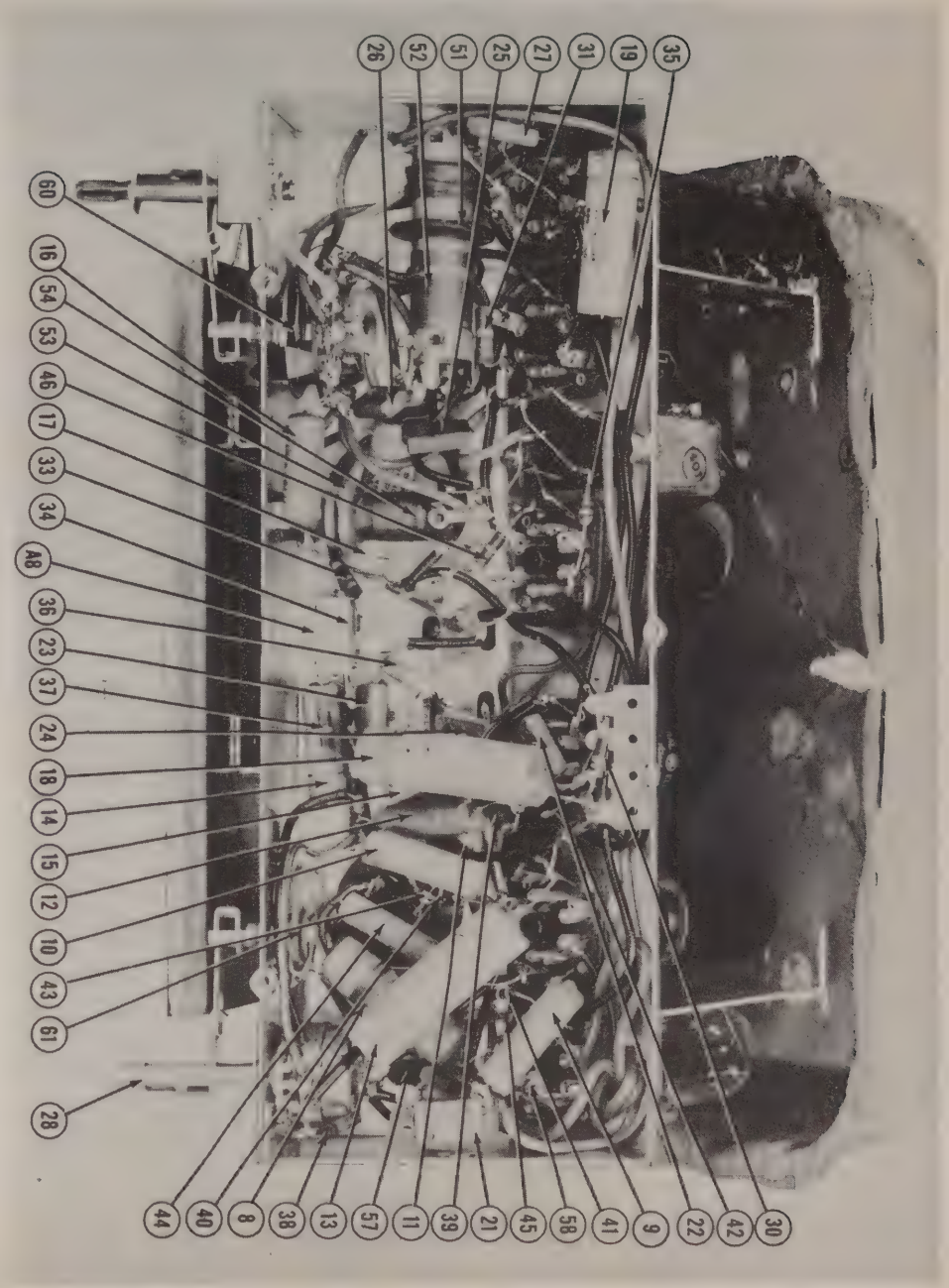
DIAL LIGHT

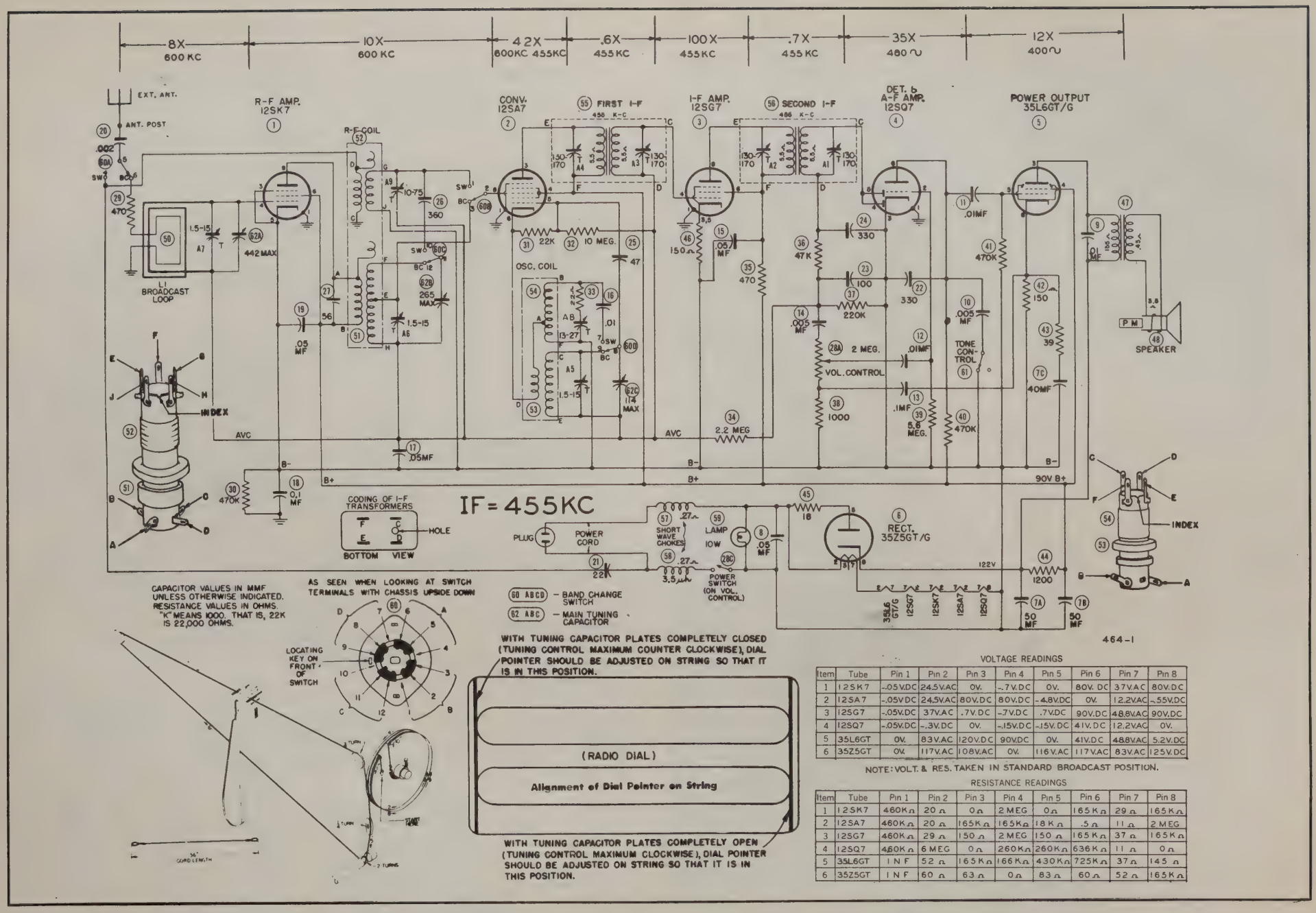
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GENERAL ELECT. PART No.		
59	Screw	110	.05				Type C7

MISCELLANEOUS

ITEM No.	PART NAME	GENERAL ELECTRIC PART No.	NOTES
60	Band Switch	RSW-005	
61	Tone "	RSW-004	
62	Tuning Cap.	RCT-004	3 Gang Variable Cap.
A7	Trimmer	RCV-002	Ant. Adjustment 1.5-15 MMF
A8	"	RCV-003	SW Osc. Adjustment 13-27 MMF
	Switch Arm	RAA-003	Band Change & Tone - Switch Half
	" "	RAA-004	" " & " - Flipper "
	Cabinet	RAU-004	
	"	RAU-005	
	Dial Scale	RDS-005	Assembly

CHASSIS—BOTTOM VIEW




8X 600 KC
10X 600 KC
42X 600KC 455KC
.6X 455KC
100X 455KC
.7X 455KC
35X 480 ∿
12X 400 ∿
EXT. ANT.
ANT. POST
R-F AMP. 12SK7
R-F COIL
CONV. 12SA7
FIRST I-F
SECOND I-F
I-F AMP. 12SG7
DET. & A-F AMP. 12SQ7
POWER OUTPUT 35L6GT/G
OSC. COIL
L1 BROADCAST LOOP
VOL. CONTROL
TONE CONTROL
SPEAKER
INDEX
AVC
B-
B+
90V B+
122V
IF = 455KC
CODING OF I-F TRANSFORMERS
BOTTOM VIEW
HOLE
PLUG
POWER CORD
SHORT WAVE CHOKES
LAMP 10W
POWER SWITCH (ON VOL. CONTROL)
RECT. 35Z5GT/G
(60 ABCD) – BAND CHANGE SWITCH
(62 ABC) – MAIN TUNING CAPACITOR
CAPACITOR VALUES IN MMF UNLESS OTHERWISE INDICATED. RESISTANCE VALUES IN OHMS. "K" MEANS 1000. THAT IS, 22K IS 22,000 OHMS.
AS SEEN WHEN LOOKING AT SWITCH TERMINALS WITH CHASSIS UPSIDE DOWN
LOCATING KEY ON FRONT OF SWITCH
WITH TUNING CAPACITOR PLATES COMPLETELY CLOSED (TUNING CONTROL MAXIMUM COUNTER CLOCKWISE), DIAL POINTER SHOULD BE ADJUSTED ON STRING SO THAT IT IS IN THIS POSITION.
(RADIO DIAL)
Alignment of Dial Pointer on String
WITH TUNING CAPACITOR PLATES COMPLETELY OPEN (TUNING CONTROL MAXIMUM CLOCKWISE), DIAL POINTER SHOULD BE ADJUSTED ON STRING SO THAT IT IS IN THIS POSITION.
464-1

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-.05V.DC	24.5V.AC	0V.	-.7V.DC	0V.	80V. DC	37V.AC	80V.DC
2	12SA7	-.05V.DC	24.5V.AC	80V.DC	80V.DC	-4.8V.DC	0V.	12.2VAC	-.55V.DC
3	12SG7	-.05V.DC	37V.AC	.7V.DC	-.7V.DC	.7V.DC	90V.DC	48.8V.AC	90V.DC
4	12SQ7	-.05V.DC	-.3V.DC	0V.	-.15V.DC	-.15V.DC	41V.DC	12.2VAC	0V.
5	35L6GT	0V.	83V.AC	120V.DC	90V.DC	0V.	41V.DC	48.8VAC	5.2V.DC
6	35Z5GT	0V.	117V.AC	108V.AC	0V.	116V.AC	117VAC	83V.AC	125V.DC

NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION.

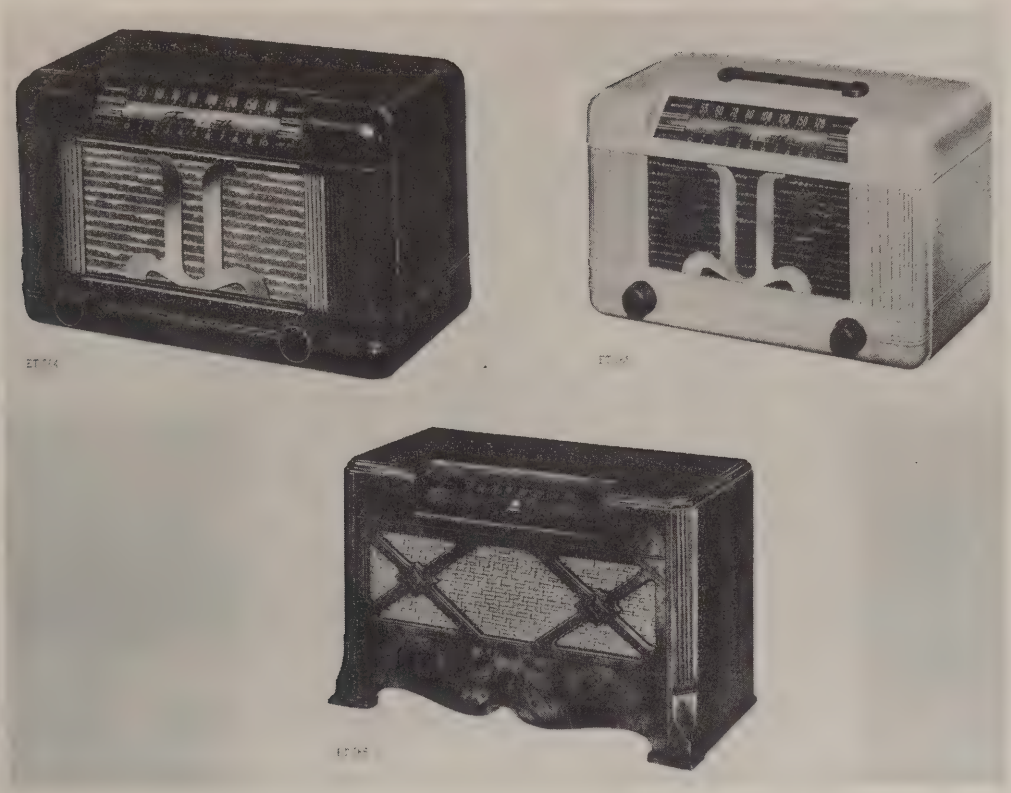
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	460KΩ	20Ω	0Ω	2 MEG	0Ω	165KΩ	29Ω	165KΩ
2	12SA7	460KΩ	20Ω	165KΩ	165KΩ	18KΩ	.5Ω	11Ω	2 MEG
3	12SG7	460KΩ	29Ω	150Ω	2 MEG	150Ω	165KΩ	37Ω	165KΩ
4	12SQ7	460KΩ	6 MEG	0Ω	260KΩ	260KΩ	636KΩ	11Ω	0Ω
5	35L6GT	INF	52Ω	165KΩ	166KΩ	430KΩ	725KΩ	37Ω	145Ω
6	35Z5GT	INF	60Ω	63Ω	0Ω	83Ω	60Ω	52Ω	165KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FARNSWORTH
MODELS ET-064, ET-065, ET-066



FARNSWORTH
MODELS ET-064, ET-065, ET-066

FARNSWORTH MODEL ET-066

TRADE NAME	Farnsworth Models ET-064, ET-065, ET-066
MANUFACTURER	Farnsworth Television & Radio Corp., Fort Wayne, Ind.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING - .270 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1620KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Loop spaced 3/4" from chassis or same relative position to chassis as when in cabinet. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
100 MMFD	High side to one white lead back of loop. Low side to other lead.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	"	1500KC	1500KC	"	A5	" " " "
"	"	"	"	"	A6	" " " "
						Check pointer calibration at 600KC.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SS7	6SS7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	6SS7	6SS7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FARNSWORTH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	25022	2N513	DSB-2x40-150	TA-230	PRS150-40-40	BRD4215	Filter - Red
B	20	150							" - Yellow
8	.02	600	25195	TP412	S-6-02	TC-12	684-.02	DT6S2	Line Filter
9	.1	600	25215	TP418	S-6-1	TC-1	684-.1	DT6P1	Line Isolating
10	.01	600	25194	TP410	S-6-01	TC-11	684-.01	DT6S1	50L6 Plate Bypass
11	.01	600	25194	TP410	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
12	.01	600	25194	TP410	S-6-01	TC-11	684-.01	DT6S1	" "
13	.05	600	25196	TP415	S-6-05	TC-15	684-.05	DT6S5	AVC Filter
14	.05	600	25196	TP415	S-6-05	TC-15	684-.05	DT6S5	Conv. Screen Bypass
15	.05	600	25196	TP415	S-6-05	TC-15	684-.05	DT6S5	RF Screen Bypass
16	240	500	25187	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
17	240	500	25187	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Diode
18	100	500	25188	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	RF Coupling
19	47	500	25193	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FARNSWORTH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1	78048	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

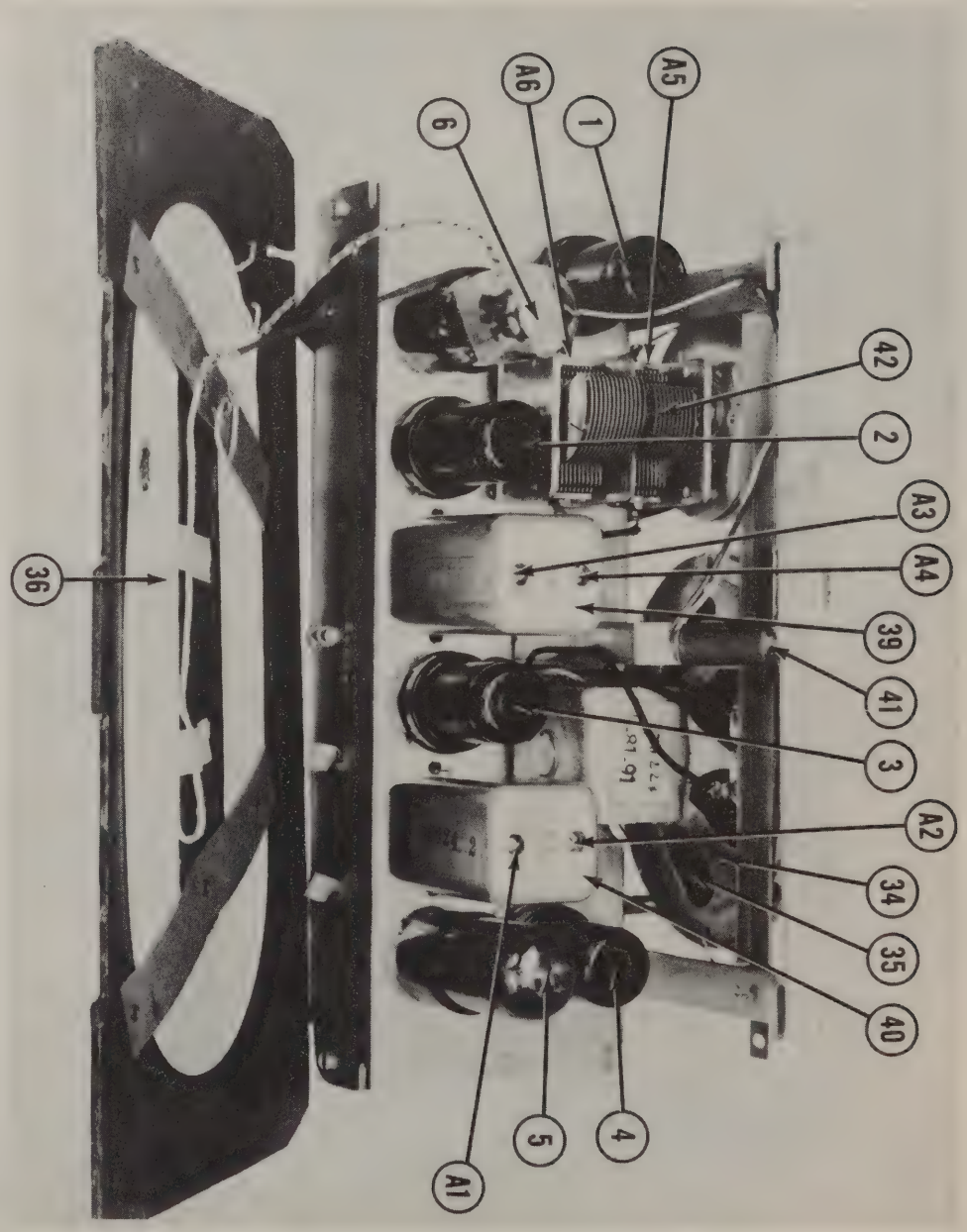
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
21	15KΩ	½	77265	BTS-15K	Br.-Grn.-Or. RF Screen Dropping
22	4700Ω	½	77211	BTS-4700	Yl.-Vi.-Red RF Plate Load
23	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Converter Grid
24	22KΩ	½	77266	BTS-22K	Red-Red-Or. Osc. Grid
25	470Ω	½	77261	BTS-470	Yl.-Vi.-Br. Filter
26	2.2 Meg.	½	77270	BTS-2.2 Meg	Red-Red-Grn. AVC Network
27	6.8 Meg.	½	77273	BTS-6.8 Meg	Blue-Gray-Grn. 1st AF Grid
28	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
29	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Output Cathode
31	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt
32	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Line Isolating

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
33	1900Ω	3.5Ω	200Ω	.75Ω	94091	A-3876	T-14S82		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FARNSWORTH PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
34	270Ω	3.5Ω	81091	ST-450†		†Add 650Ω 2 W. resistor in parallel with field coil.
	CONE DIA.	VC DIA.				
35	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	FARNSWORTH PART No.	MEISSNER PART No.	
36A	Loop Ant.	0Ω	1Ω	38478		Used on models ET064, ET065
36B	" "	0Ω	1Ω	38479		" " " ET066
37	Wave Trap	*		38484		
38	Osc. Coil	.8Ω	5.5Ω	38483	14-1040	
39	Input IF	12.2Ω	12.1Ω	38536	16-6658	
40	Output IF	12.8Ω	12.2Ω	38537	16-6360	

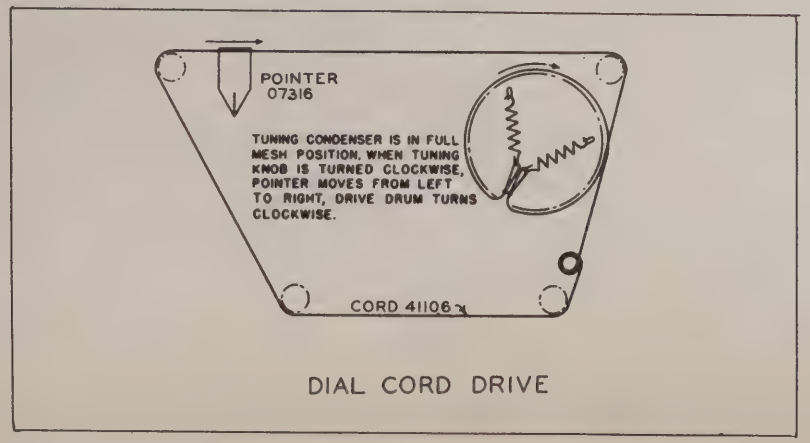
*No continuity through wave trap.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FARNSWORTH PART No.		
41	Bayonet	6-8	0.15	Brown	42186		Type 47

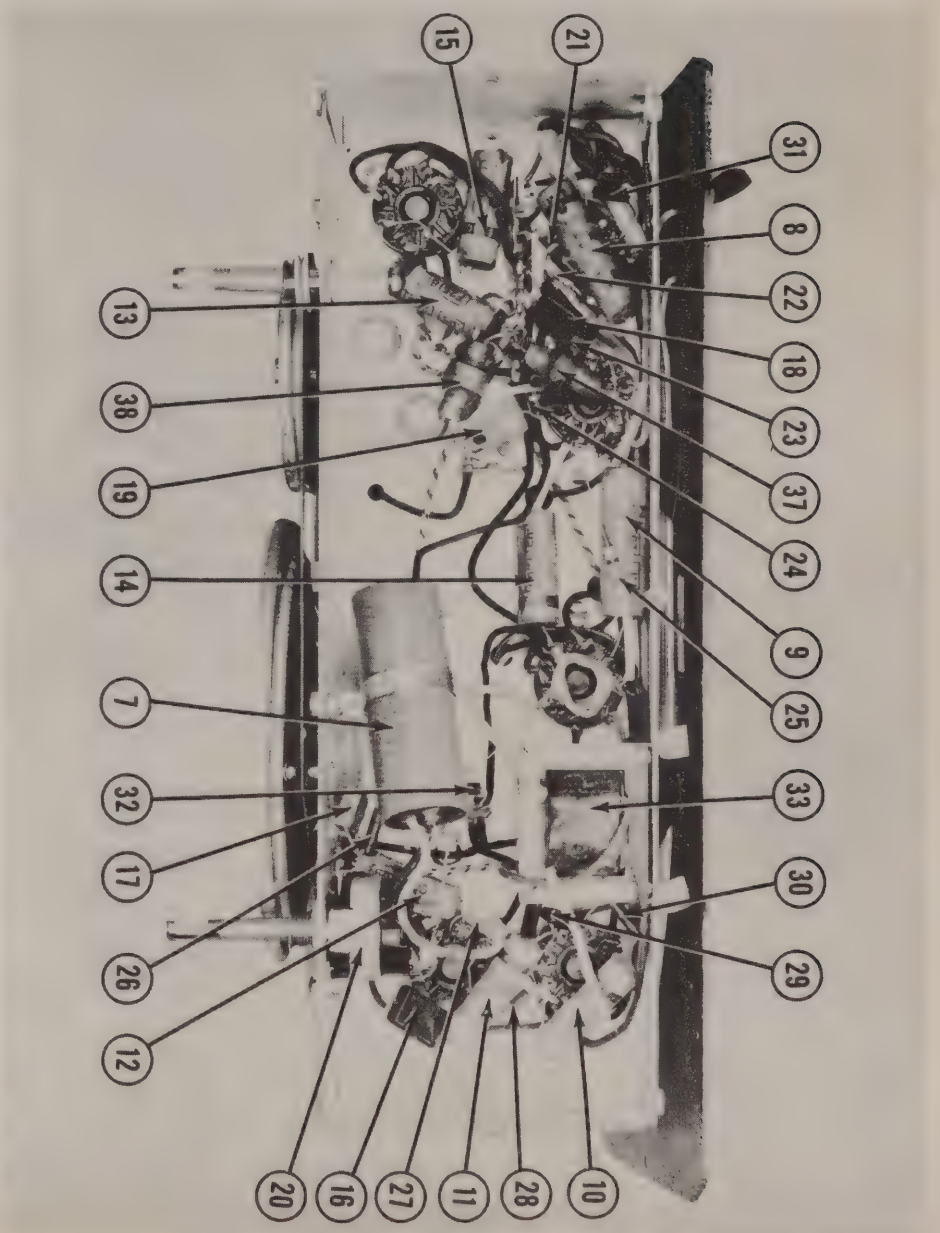
MISCELLANEOUS

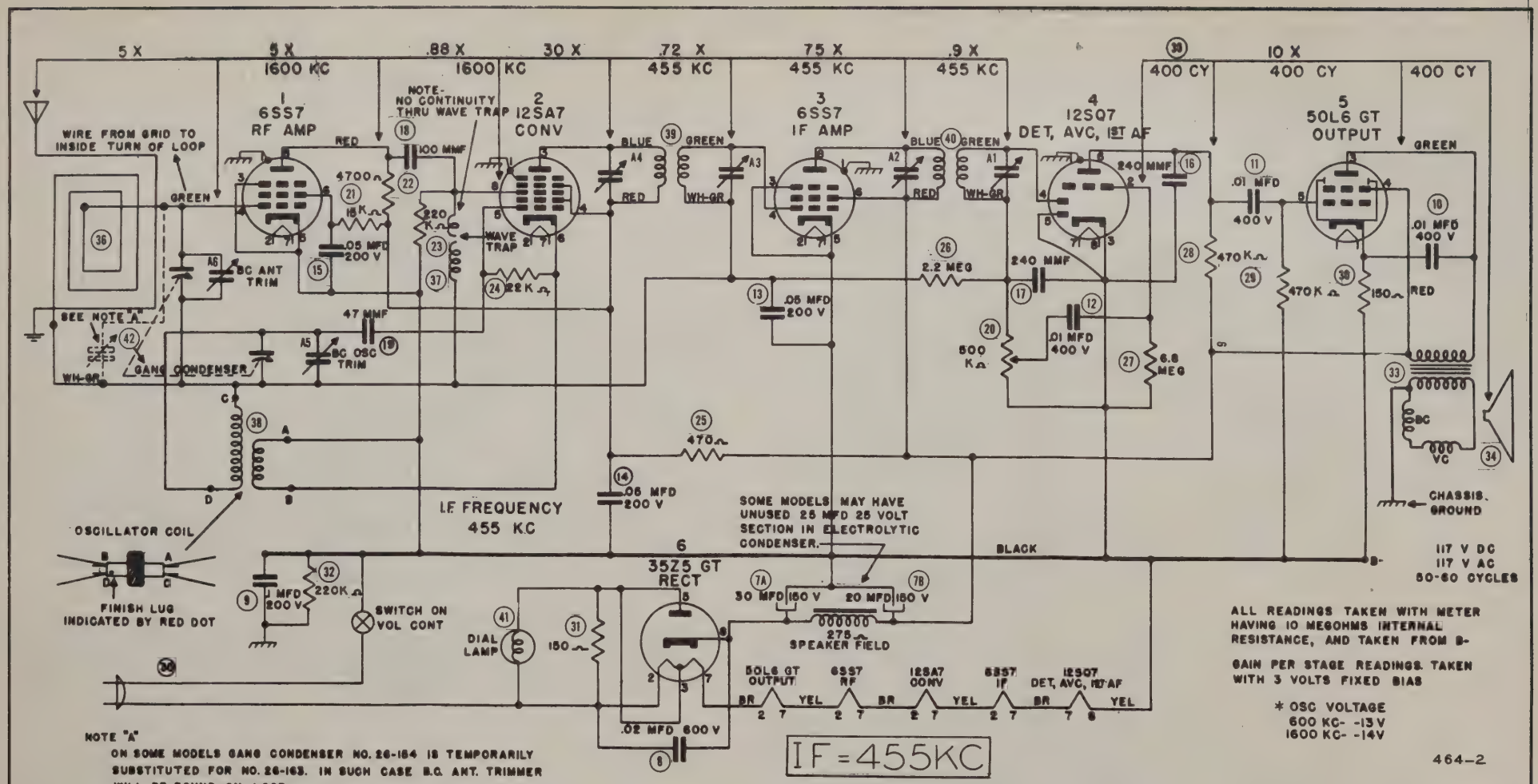
ITEM No.	PART NAME	FARNSWORTH PART No.	NOTES
42	Tuning Cap.	09130	2 Gang Variable Cap. & Drum
	Dial Scale	31265	Models ET-064, ET-065
	" "	31278	Used on Model ET-066
	Knob	59193	
	"	59134	Used on Model ET-066
	Cabinet	H-239	ET-064
	"	H-240	ET-065
	"	H-235	ET-066


POINTER
07316
TUNING CONDENSER IS IN FULL MESH POSITION. WHEN TUNING KNOB IS TURNED CLOCKWISE, POINTER MOVES FROM LEFT TO RIGHT, DRIVE DRUM TURNS CLOCKWISE.
CORD 41106

DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	0V.	32.5V.AC	0V.	-.35V.DC	0V.	62V. DC	38.4V.AC	57V.DC
2	12SA7	0V.	32.5V.AC	87V. DC	87V. DC	-2.25V.DC	0V.	19.5V.AC	0V.
3	6SS7	0V.	19.5V.AC	0V.	-.35V.DC	0V.	97V.DC	12.8V.AC	97V.DC
4	12SQ7	0V.	-.57VDC	0V.	-.25V.DC	0V.	45V.DC	12.8V.AC	0V.
5	50L6GT	0V.	87V.AC	90V. DC	97V. DC	0V.	0V.	38.4V.AC	6.4V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	0V.	113V.AC	87V.DC	87V.AC	117V.DC

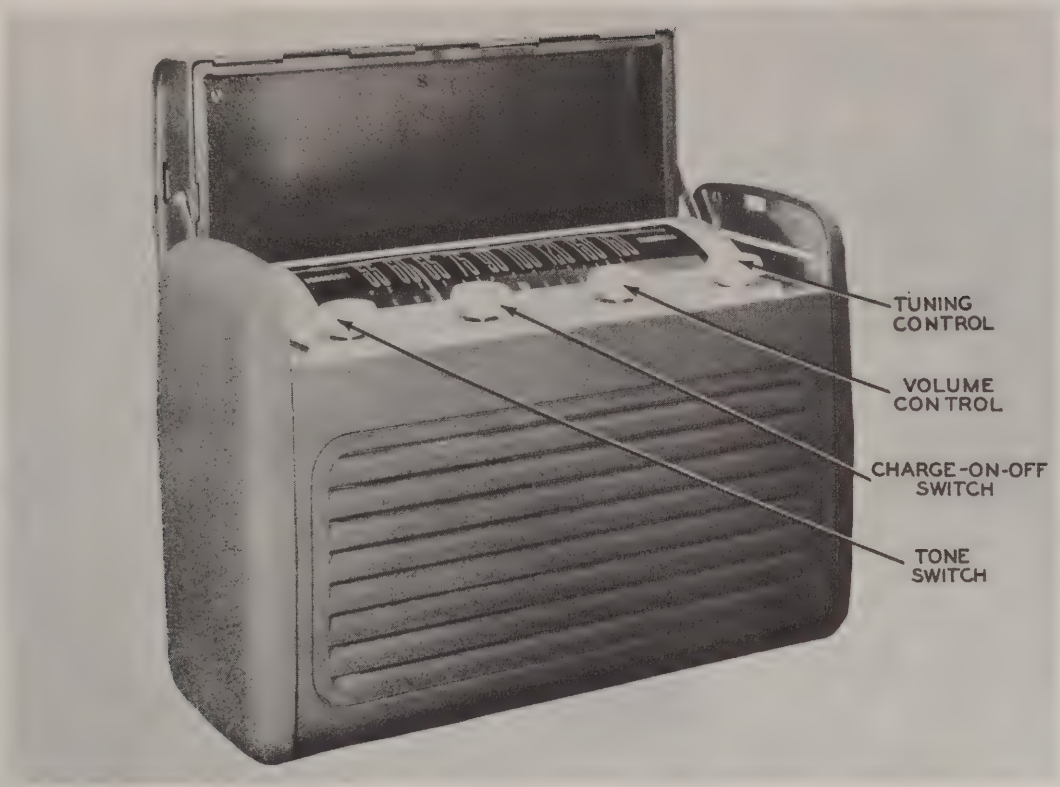
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin-8
1	6SS7	185 KΩ	31 Ω	0 Ω	2.5MEG	0 Ω	455KΩ	37 Ω	455KΩ
2	12SA7	185 KΩ	31 Ω	440KΩ	440KΩ	20K Ω	.5 Ω	19 Ω	200KΩ
3	6SS7	185 KΩ	19 Ω	0Ω	2.5MEG	0 Ω	440KΩ	13 Ω	440KΩ
4	12SQ7	185 KΩ	6MEG	0 Ω	570KΩ	0 Ω	910 KΩ	13 Ω	0 Ω
5	50L6GT	185 KΩ	88 Ω	440KΩ	440KΩ	510 KΩ	0 Ω	37 Ω	160 Ω
6	35Z5GT	I N F	116 Ω	113 Ω	0 Ω	113 Ω	440KΩ	88 Ω	440KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL ELECTRIC
MODEL 250



GENERAL ELECTRIC
MODEL 250

GENERAL ELECTRIC MODEL 250

TRADE NAME	General Electric Model 250
MANUFACTURER	General Electric Co., Bridgeport, Conn.
TYPE SET	Superheterodyne Receiver Which Operates From Rechargeable Battery or 105-125 VoltsAC
TUBES (FIVE)	Types, 1LN5 RF Amp., 1LC6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	2 Volt Rechargeable Battery or 105-125V AC Rating - 1.6 Amps. @ 2 Volt DC
TUNING RANGE—BROADCAST	540-1600KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Front panel must be removed to connect output meter. After connecting, return panel to original position. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to RF stator section of tuning gang. Low side to chassis.	455KC	Reference point below 550KC. (gang closed)	Across voice coil (green lead and chassis	A1,A2, A3,A4.	Adjust for maximum output.
	Loop (Output of signal gen. to loop of few turns of wire and radiate signal into rec'r loop.)	580KC	580KC	"	A5,A6.	Adjust for maximum output. Alternate between A5 and A6 several times for maximum.
	"	1500KC	1500KC	"	A7,A8, A9.	Adjust in order for maximum output. Rear cover closed and adjust through ports after removing snap buttons.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA GEN. ELECT. PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1LN5	1LN5	7A0	
2	Converter	1LC6	1LC6	7AK	
3	IF Amp.	1LN5	1LN5	7A0	
4	Det.-AVC-AF	1LH4	1LH4	5AG	
5	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA GENERAL ELECTRIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	15	150	RCE-007	FP302	DY2x15-150/1200-1.5	EL-221	AF44D	UP2215	■ Filter
B	15	150							▲ "
C	1200	1.5				UHC1500	HCLV12-1000	BRH310	"
7	.5	120	RCC-070	RF480		1122		HC1900B	Hash Filter
8	.5	120	RCC-070	RF480		1122		HC1900B	" "
9	.5	120	RCC-069	RF480		1122		HC1900B	RF Filter
10	.003	1500	RCC-073	0W342	XTIMS10-.003	TR-23	1384-.003	MD16D3	Buffer
11	.05	400	RCC-028	TP426	S-4-05	TC-15	484-.05	DT4S5	Hash Filter
12	.1	400	UCC-033	TP428	S-4-1	TC-1	484-.1	DT4P1	Tone Compensation
13	.05	400	RCC-028	TP426	S-4-05	TC-15	484-.05	DT4S5	Feedback
14	.02	600	UCC-041	TP412	S-6-02	TC-12	684-.02	DT6S2	3Q5 Plate Bypass
15	.005	600	UCC-039	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
16	.005	600	UCC-039	TP408	S-6-005	TC-25	684-.005	DT6D5	" "
17	.05	400	RCC-028	TP426	S-4-05	TC-15	484-.05	DT4S5	IF Screen Bypass
18	.1	400	UCC-030	TP428	S-4-1	TC-1	484-.1	DT4P1	Conv. Screen Bypass
19	.005	600	UCC-039	TP408	S-6-005	TC-25	684-.005	DT6D5	Conv. Plate Decoup.
20	.05	400	RCC-028	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Screen Bypass
21	.05	400	RCC-028	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
22	100	500	UCU-028	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
23	100	500	UCU-028	MC235	M0.5-31	1FM-31	1438-.0001	5W5T1	RF Bypass Diode
24	100	500	UCU-028	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Osc. Grid Capacitor
25	6.8		UCN-506						RF Coupling
26	330	500	UCU-040	MC241	M0.5-33	1FM-335	1468-.0003	5W5T3	" "

CONTROLS

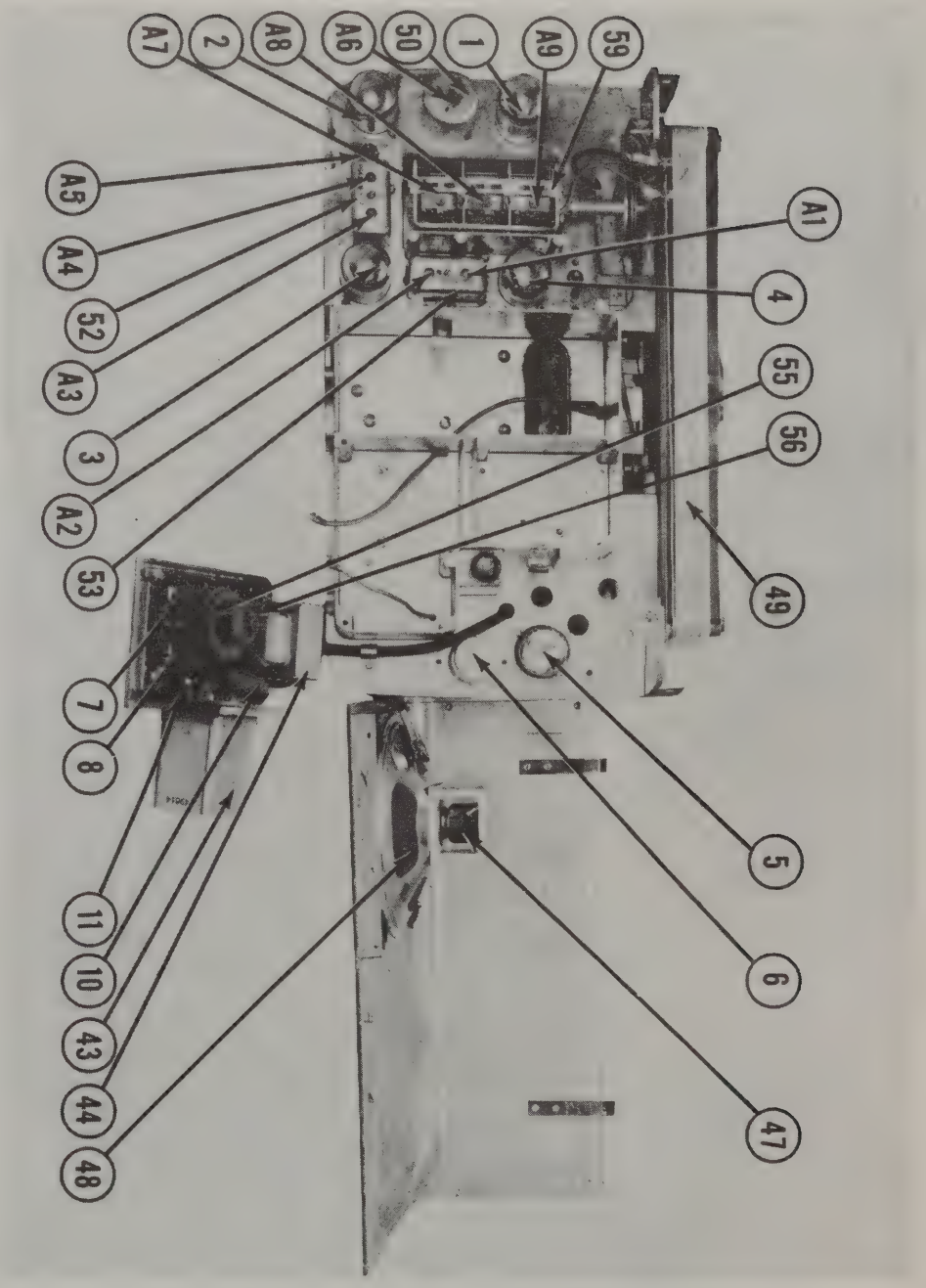
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GEN. ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
27A	500KΩ	1	RRC-008	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 27A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GEN. ELECT. PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
28	1 Meg.	½	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
29	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. Osc. Grid
30	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. Mixer Screen Dropping
31	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. Osc. Anode Decoupling
32	5600Ω	½	URD-067	BTS-5600	Grn.-Blue-Red IF Screen Dropping
33	2.2 Meg.	½	URD-129	BTS-2.2 Meg	Red-Red-Grn. AVC Network
34	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. Diode Load
35	4.7 Meg.	½	URD-137	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
36	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. 1st AF Plate Load
37	1 Meg.	½	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
38	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Tone Compensation
39	2200Ω	½	URD-057	BTS-2200	Red-Red-Red Tone Compensation
40	2700Ω	½	URD-059	BTS-2700	Red-Vi.-Red Feedback
41	1500Ω	1	URE-053	BTA-1500	Br.-Grn.-Red Filter
42	7.5Ω	½	RRG-001	BW-½-15 (2 Req.)*	Vi.-Grn.-Gold Output Series Filament

*Connect the two (2) 15Ω resistors in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				GENERAL ELECTRIC PART No.	MALLORY PART No.	RADIART PART No.	
43	Synchronous	2.05	115~	REU-001			

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	GEN. ELECTRIC PART No.	STANCOR PART No.	THORDASON PART No.	
44	2.05 VDC @ 1.5A	300 VCT @ .18A			RTV-001			

TRANSFORMER (CHARGING)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	GEN. ELECTRIC PART No.	STANCOR PART No.	THORDASON PART No.	
45	117VAC @ .09A	5.6VCT @ 1.6A			RTC-001	T-19F81†		†Requires bracket to mount transformer horizontally.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GEN. ELECTRIC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
46	13,000Ω	3.7Ω	330Ω	.35Ω	RTO-007	A-3831	T-13S40		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GEN. ELECT. PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
47	PM	3.7Ω	U0P-009			
	CONE DIA.	VC DIA.				
48	5-3/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

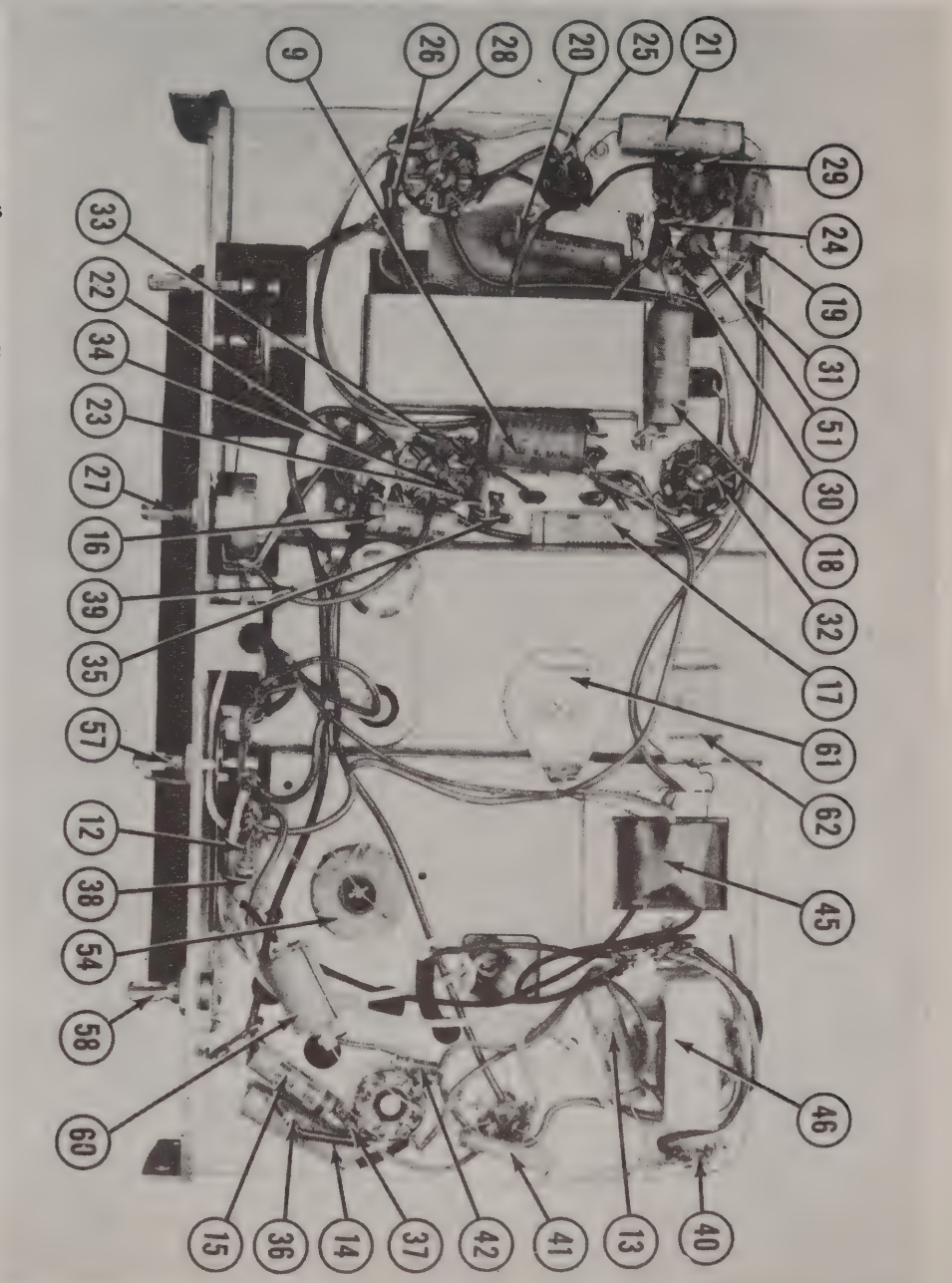
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GEN. ELECT. PART No.	MEISSNER PART No.	
49	Loop Ant.		1.5Ω	RLL-008		
50	RF Coil	105Ω	4Ω	RLB-002		
51	Osc. Coil	.5Ω	3.5Ω	RLC-008		
52	Input IF	7.5Ω	6.8Ω	RTL-011		
53	Output IF	7.3Ω	7.5Ω	RTL-012		
54	Fil. Choke	4.8Ω	4.8Ω	RLF-002		
55	Vib. Choke	0Ω		RLF-001		
56	B+ Choke	5.8Ω		RLF-001		

MISCELLANEOUS

ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
57	Switch	RSW-009	Power Selector
58	"	RSW-010	Tone "
59	Tuning Cap.	RCT-008	3 Gang Variable Cap.
60	Bias Cell	RBC-001	
61	Rectifier	REX-001	Copper Oxide
62	"	REX-001	" "
	Knob	RDK-020	Control (plain)
	"	RDK-021	" (pointer)
	Dial Scale	RDS-013	
	Fuse	REF-001	3AG ¼ Amp.

CHASSIS—BOTTOM VIEW



DISASSEMBLY OF PORTABLE GENERAL ELECTRIC MODEL 250 FOR SERVICE

1 - Remove the push-on volume, tone, charge-off-on, and dial tuning knobs.

2 - Remove three bolts from bottom of case holding chassis to case.

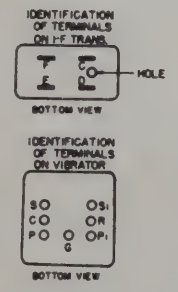
3 - Remove four Phillips head screws from the two side panels inside the top cover.

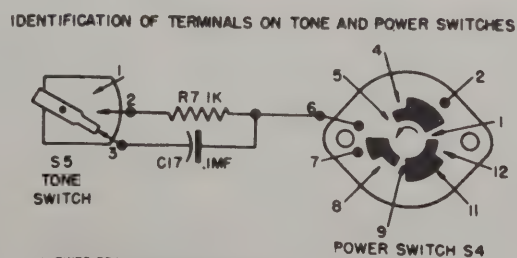
4 - Remove four Phillips head screws from the dial panel.

5 - Remove front and bottom panel assembly.

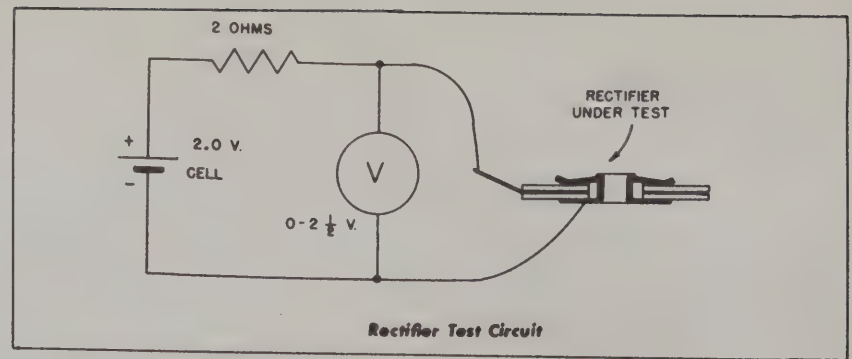
SERVICE POWER SUPPLY

Remove three flat head screws on top of die-cast plate. Pry the lid from the power supply compartment and lift it straight outward. All of the power supply components are attached to the lid and will come out with it as far as the connecting leads will permit. In replacing this cover, be careful not to short circuit the B+ lead.





VIEWED FROM REAR OF RADIO. BOTH SWITCHES IN EXTREME COUNTER-CLOCKWISE POSITION.



Rectifier Test Circuit

TESTING THE INDIVIDUAL RECTIFIER DISCS

Two rectifier assemblies are used in the receiver, each assembly consisting of two rectifier discs held together by an eyelet. A cross section of a rectifier assembly is shown above. The center plate of the assembly is positive and is provided with a soldering tab. A copper-oxide rectifier disc is located on each side of the center plate. The rectifier disc conducts when the positive potential is applied to the copper-oxide surface. The copper oxide is a dark purple coating which has been plated with nickel to afford a good surface contact to the copper-oxide. If either or both of the rectifier discs in an assembly become defective, the entire assembly should be replaced.

To check the rectifier assembly, the following tests are recommended. In the conducting direction, the rectifier assembly should pass 0.5 ampere or more when ½ volt is impressed across it. If a d-c ammeter is not available for measuring currents as high as 0.65 ampere, the circuit shown above can be used for this check. The 2.00 ohm resistance should be fairly accurate. The voltage across the rectifier assembly should read 0.7 volt or less; if this voltage exceeds 0.7 volt, the assembly is defective and should be replaced.

The reverse current flow is as important as the above test and is made as follows: Reverse the battery polarity in the test circuit described for current check, disconnect the voltmeter, and place a milliammeter that will read 10 ma. in series with a lead to one of the battery terminals. A suitable meter fuse should be used in series with the milliammeter to prevent damage to the meter in case the assembly under test is shorted. The reverse current should not exceed 10 ma. If the current is considerably above this value, the rectifier assembly should be discarded.

If a milliammeter is not available, a rough check may be made by measuring the resistance of the assembly in the nonconducting direction on the low-resistance range of an ohmmeter. The resistance should measure at least 300 ohms.

BATTERY INFORMATION

The receiver uses a 2-volt Willard Radio Battery No. 25-2 or equivalent. It has a 25-ampere-hour capacity and should be cared for in the same manner as any other storage battery.

CHARGE INDICATOR

The degree of charge of the battery can be determined by raising the back cover of the radio and referring to the charge ball indicators visible through the hole in the metal battery case.

If the battery is fully charged, two indicator balls will be visible at the surface of the liquid in the battery. When the battery discharges, these ball indicators will sink and disappear in the following order:

1 - Green indicator sinks when approximately 20% of battery capacity has been discharged.

2 - The red ball sinks when battery is 80% discharged. On charge, the balls rise or float in the reverse order and the charge is complete and may be stopped when both balls appear in the opening.

TO CHARGE BATTERY

The battery is charged by merely plugging the receiver power cord in the rated a-c power outlet and turning the selector switch to CHARGE. Frequent check should be taken of the charge indicator and when both indicator balls are visible, the battery is fully charged. Charging the battery after all indicator balls are visible will not harm the battery except that it will evaporate the water faster. A completely discharged battery will be restored usually within 20 to 30 hours.

When operating the receiver from the a-c house current, the battery floats or is being charged at a slow rate. Thus, if you wish to operate the receiver at the same time that you are charging even a fully discharged battery, plug the power cord in the a-c receptacle and turn the power selector switch to the ON position. Prolonged and repeated operation on this position will assure that the battery is always maintained in a nearly fully charged condition.

BATTERY OPERATING INSTRUCTIONS

1 - Add distilled or tap water in the filler cap at sufficiently frequent intervals to keep liquid level at indicator mark as viewed through opening in battery case. DO NOT OVERFILL as this impairs nonspill feature.

2 - A fully charged battery will operate the radio in the ON position without being connected to a-c outlet for about 20 hours before recharging is required. Whenever possible, it is best not to allow the battery to become discharged to the extent that both indicators disappear.
However, if both indicators have sunk, the battery should be recharged immediately or within 24 hours.

3 - A battery will continually discharge at a slow rate even when not in use. For this reason, monthly checks should be made of the charge condition and the battery placed on charge when necessary. This will prevent damage to the battery such as freezing during cold weather.

BATTERY INSTALLATION

The following instructions should be carefully followed in installing a battery:

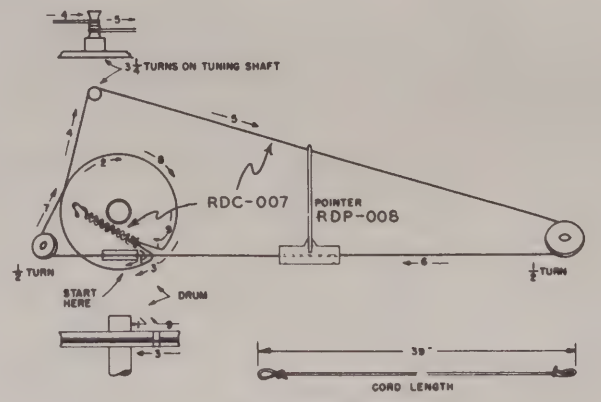
1 - Remove battery from packing carton.

2 - If needed, add water to bring liquid level to indicator mark on battery container. DO NOT OVERFILL.

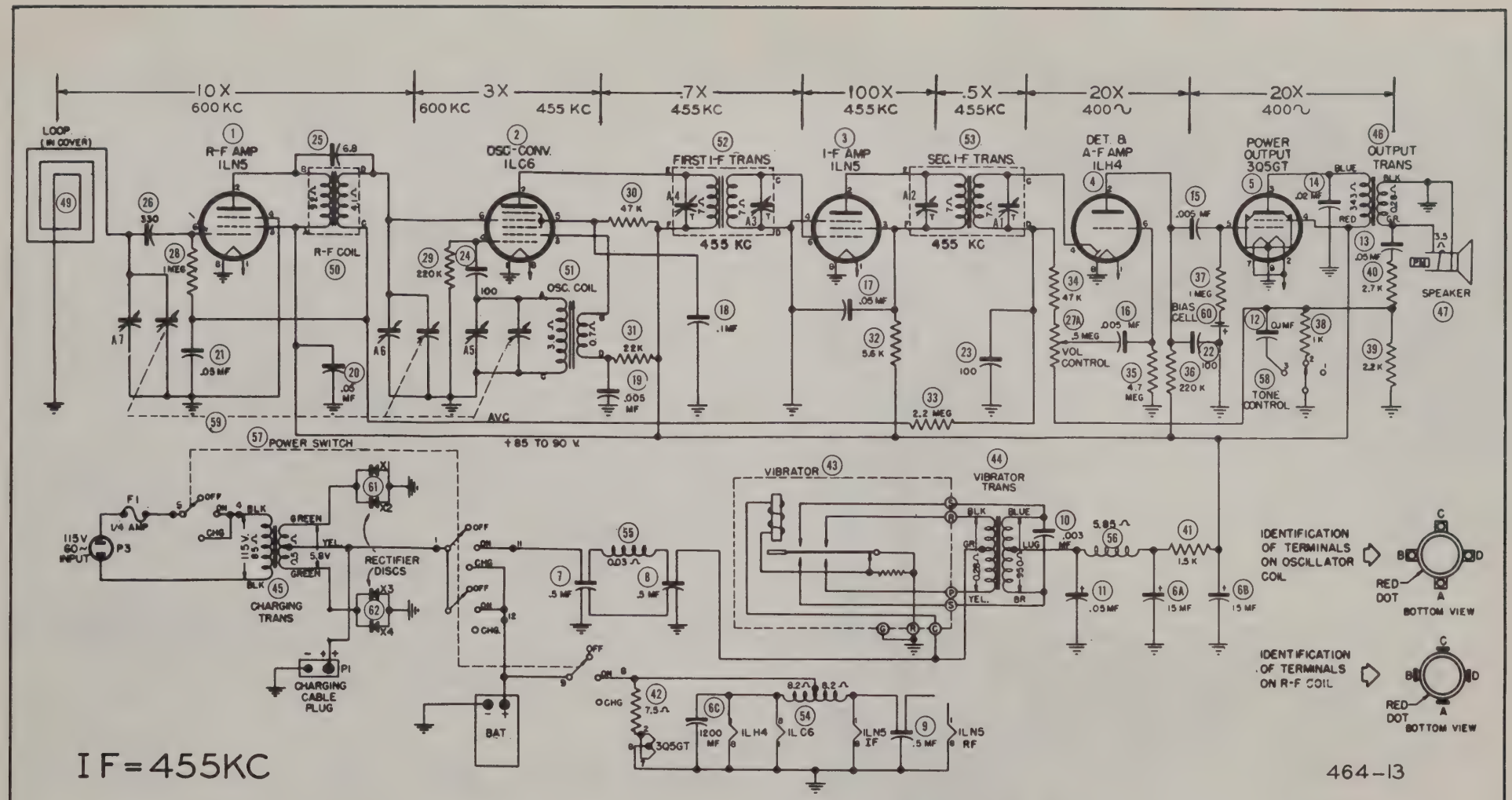
3 - Raise back cover on radio, remove battery case cover. The latter is removed by unclipping the two catches. Pry off cover.

4 - Unplug battery and replace with new battery.

5 - Place battery on charge, if necessary, as described in a previous paragraph, until both indicators are showing in the opening in the case cover.



Dial Stringing Diagram



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	ILN5	1.3V. DC	88V. DC	88V. DC	0V.	0V.	0V.	0V.	0V.
2	ILC6	0V.	88V. DC	45V. DC	0V.	40 V. DC	0V.	0V.	1.32V. DC
3	ILN5	1.3V. DC	78V. DC	78V. DC	0V.	0V.	0V.	88V. DC	0V.
4	ILH4	1.32V. DC	77V. DC	0V.	0V.	0V.	0V.	0V.	0V.
5	3Q5GT	2.05V. DC	1.3V. DC	85V. DC	88 V. DC	-.6V. DC	-2.6V. DC	1.3V. DC	0V.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	ILN5	3.5 Ω	1.2MEG	1.2MEG	0Ω	0Ω	3.5MEG	2.6 MEG	0V.
2	ILC6	0Ω	1.2MEG	1.2MEG	215KΩ	1.25MEG	2.6MEG	I N F	3.5 Ω
3	ILN5	3.5Ω	1.2MEG	1.2MEG	0Ω	0Ω	0Ω	1.2MEG	0Ω
4	ILH4	3.5Ω	1.4MEG	2.6MEG	500KΩ	500KΩ	5.5MEG	460KΩ	0Ω
5	3Q5GT	2Ω	2.75Ω	1.2MEG	1.2MEG	900KΩ	35 KΩ	2.75Ω	0Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOFFMAN
MODEL A200

HOFFMAN
MODEL A200

HOFFMAN MODEL A200

TRADE NAME	Hoffman Model A200 (Ch. No. 103)
MANUFACTURER	Hoffman Radio Corp., 3430 So. Hill Street, Los Angeles, California
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC RATING - .230 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) 12SA7. Low side to B-.	455KC	Point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not connect isolating capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
	Loop	1600KC	Tuning gang fully open (min. cap.)	"	A5	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop.
	"	1400KC	Tune in 1400 KC signal.	"	A6	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SG7	12SG7	8BK	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	4201	FP214	DY-50-30-150	EL-35	AF1010D	UP6BJ34	■ Filter
B	30	150							▲ "
7	.01	600	4103	TP410	S-6-01	TC-11	684-.01	DT6S1	Line Filter
8	.1	200	4111	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolating
9	.02	400	4106	TP423	S-4-02	TC-12	484-.02	DT4S2	50L6 Plate Bypass
10	.05	200	4100	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Bypass Pwr. Supp.
11	.005	600	4102	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
12	.05	200	4106	TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Plate Decoup.
13	.005	600	4102	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
14	.05	200	4100	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
15	.1	200	4111	TP428	S-4-1	TC-1	484-.1	DT4P1	Conv. Cath. Bypass
16	.005	600	4102	TP408	S-6-005	TC-25	684-.005	DT6D5	Ant. Coupling
17	270	500	4001	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
18	270	500	4001	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Diode
19	100	500	4000	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1	4802	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

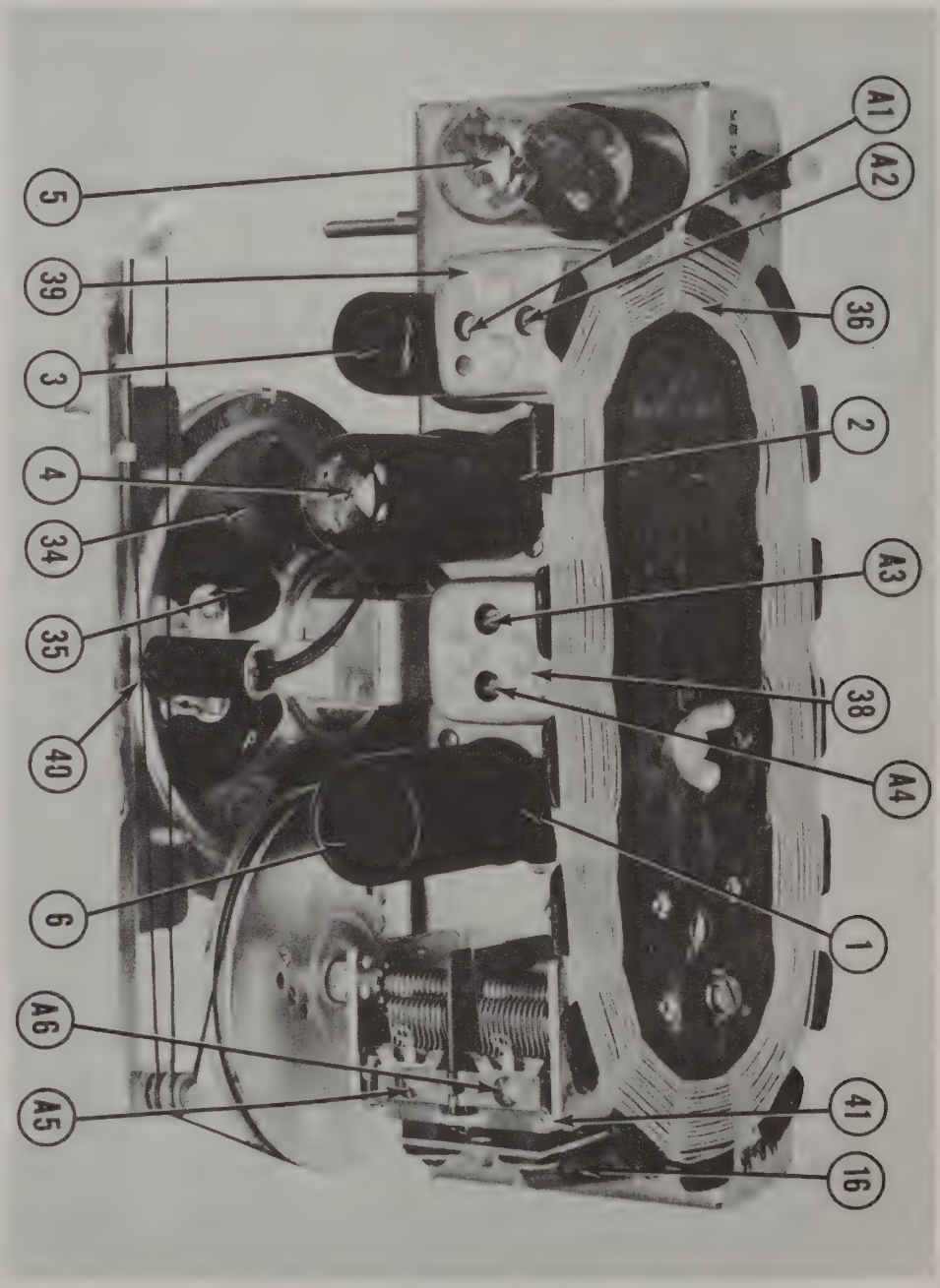
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
21	22KΩ	½	4501	BTS-22K	Red-Red-Or. Osc. Grid
22	60Ω	½	4524	BW-½-68	Blue-Blk.-Blk. Converter Cathode
23	2.2 Meg.	½	4502	BTS-2.2 Meg	Red-Red-Grn. AVC Network
24	47KΩ	½	4504	BTS-47K	Yl.-Vi.-Or. Diode Load
25	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
26	220KΩ	½	4500	BTS-220K	Red-Red-Yl. Plate Load
27	100KΩ	½	4511	BTS-100K	Br.-Blk.-Yl. Plate Filter
28	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Output Grid
29	150Ω	½	4510	BW-2-150	Br.-Grn.-Br. Output Cathode
30	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Line Isolating
31	500Ω	5	4700	AB-500	Filter
32	47Ω	½	4508	BW-½-47	Yl.-Vi.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
33	1600Ω	3.25Ω	180Ω	.8Ω	5101	A-3865			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA HOFFMAN PART No.	JENSEN PART No.		INSTALLATION NOTES
34	FIELD PM	VC IMP. 3.25Ω	9003	ST-105		
35	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

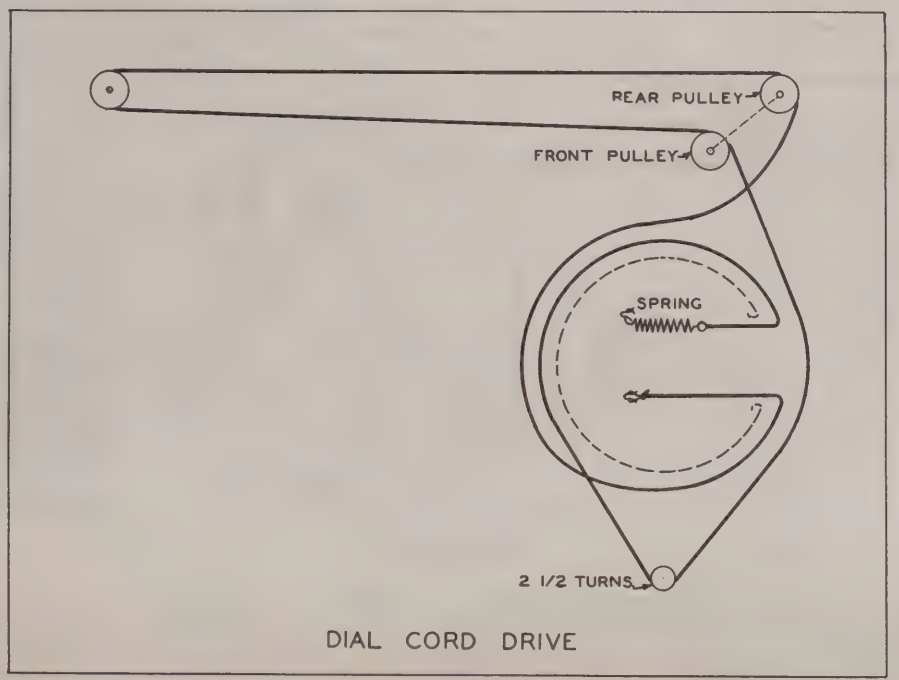
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA HOFFMAN PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
36	Loop Ant. p.	0Ω	2.2Ω	5207		
37	Osc. Coil	1.4Ω	5.9Ω	5208	14-1040	
38	Input IF	12.7Ω	12.8Ω	5205	16-6658	
39	Output IF	12.8Ω	12Ω	5206	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA HOFFMAN PART No.		INSTALLATION NOTES
40	Bayonet	6-8	0.15	Brown			Type 47

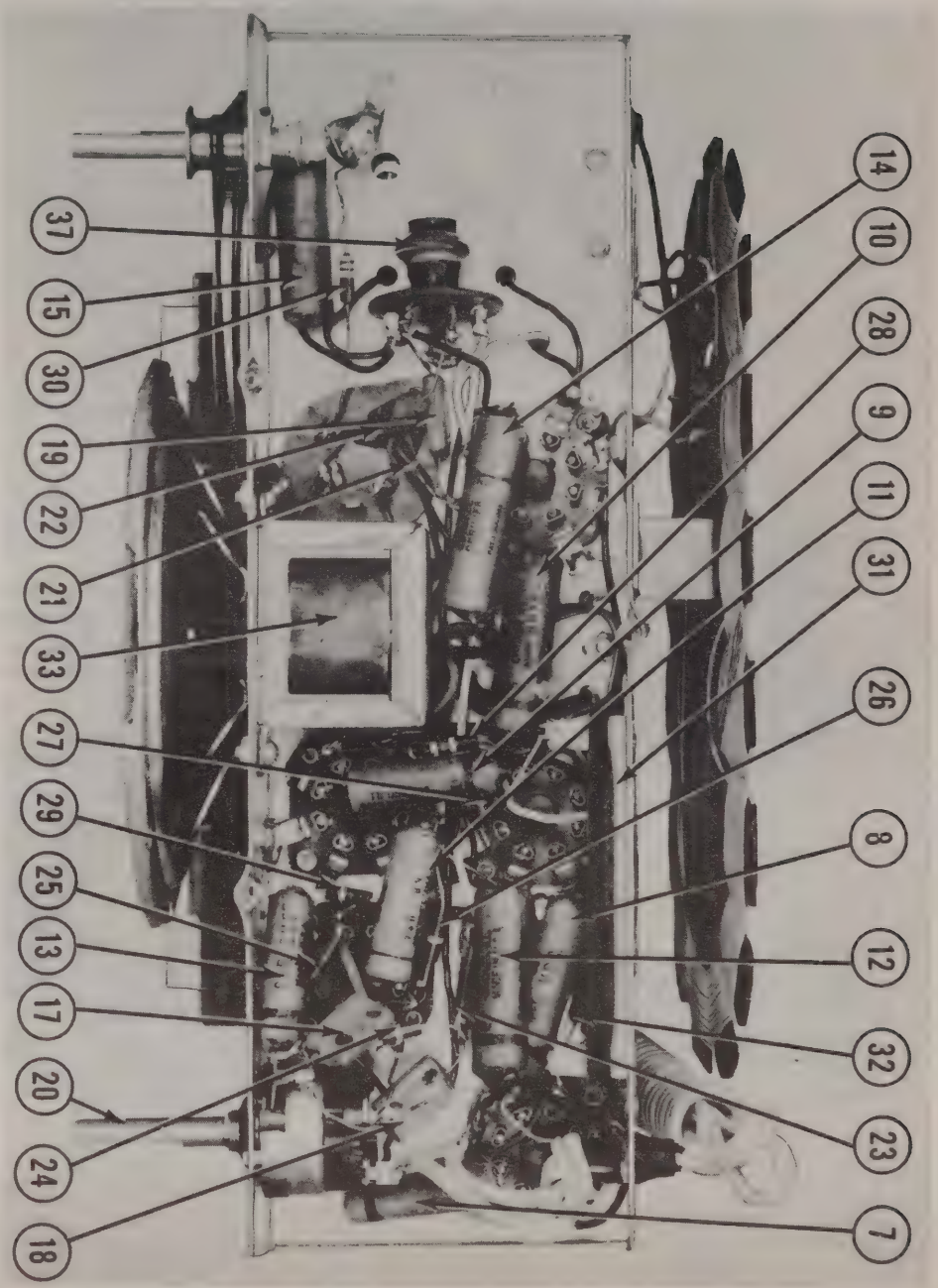
MISCELLANEOUS

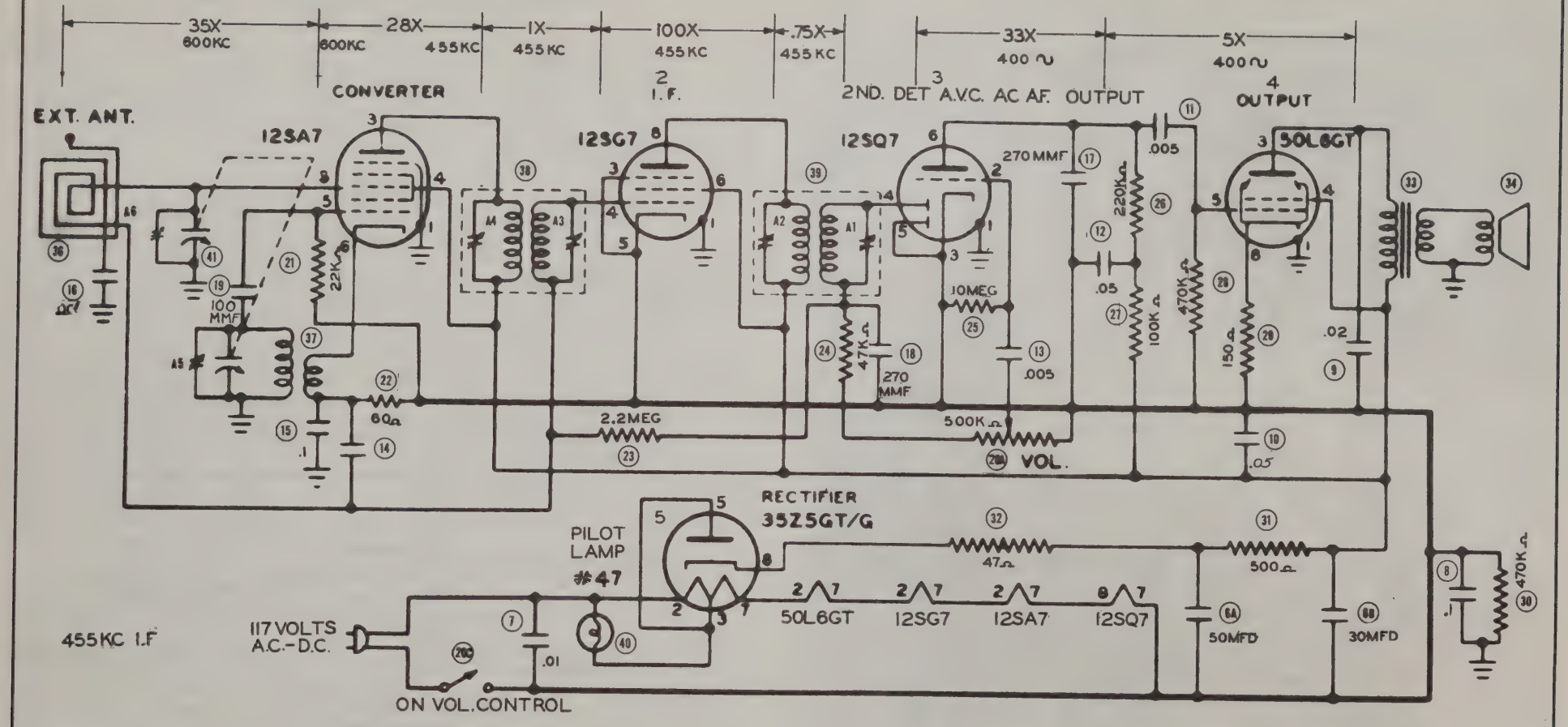
ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
41	Tuning Cap.	4401	2 Gang Variable Cap. (388-180MMF.)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





464-23

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	23V.AC	86V. DC	83V.DC	-4.2V.DC	57V.DC	11.5V.AC	-.35V.DC
2	12SG7	0V.	35.2V.AC	0V.	-.37V.DC	0V.	83V.DC	23V.AC	83V.DC
3	12SQ7	0V.	-.6V.DC	0V.	0V.	-.2V.DC	57V.DC	0V.	11.5V.AC
4	50L6GT	0V.	87V.AC	77V.DC	83V.DC	0V	75V DC	35.2V.AC	5.4V.DC
5	35Z5GT	0V.	117V.AC	112V.AC	112V.DC	112V.AC	0V.	87V.AC	112V.DC

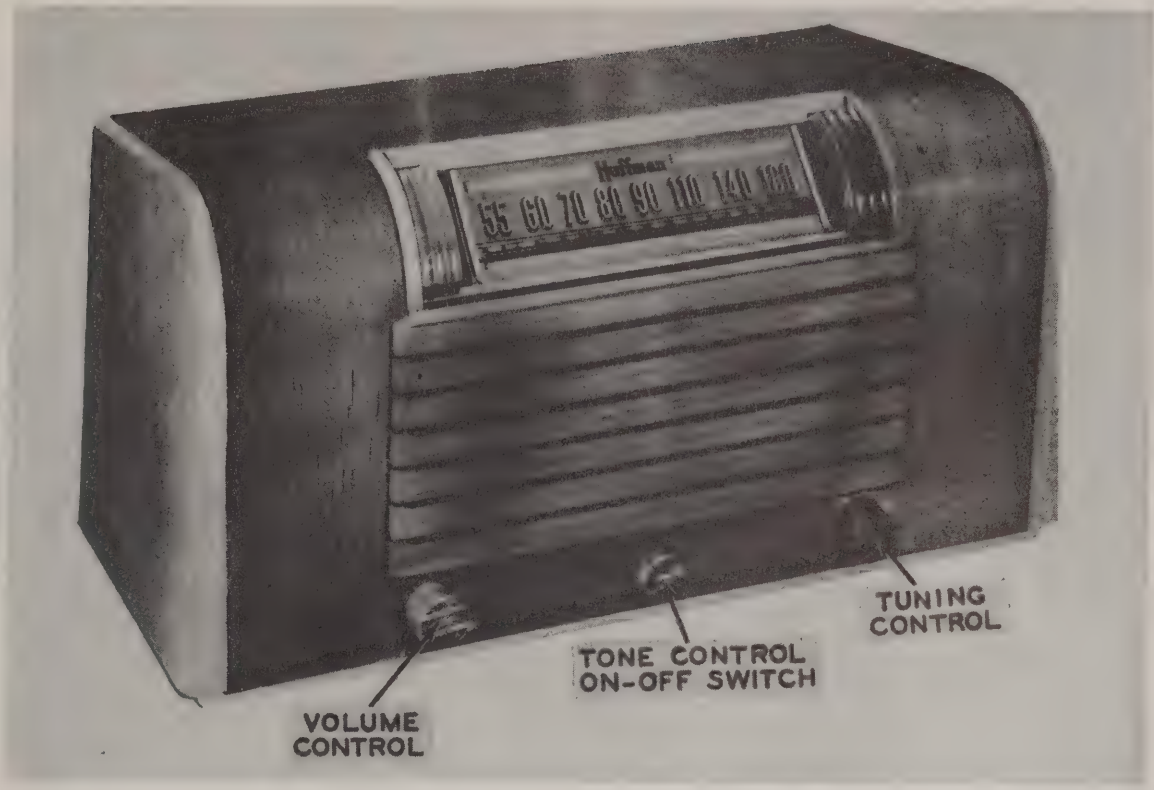
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	440KΩ	23Ω	700KΩ	700KΩ	21.5KΩ	55Ω	12.5Ω	2.8MEG
2	12SG7	440KΩ	35Ω	0Ω	2.8MEG	0Ω	700KΩ	23Ω	700KΩ
3	12SQ7	440KΩ	10MEG	0Ω	0Ω	520KΩ	1.2MEG	0Ω	12.5Ω
4	50L6GT	440KΩ	80Ω	700KΩ	700KΩ	475KΩ	1.05MEG	35Ω	145Ω
5	35Z5GT	440KΩ	108Ω	105Ω	700KΩ	105Ω	INF	80Ω	700KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOFFMAN, MODEL A300
REPLACES FOLDER NO. 463-3
DATED 8-46



HOFFMAN MODEL A300

TRADE NAME	Hoffman Model A300 (Chassis No. 100)
MANUFACTURER	Hoffman Radio Corp., 3430 South Hill Street, Los Angeles, California
TYPE SET	AC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types 6SK7 RF Amp., 6SA7 Converter 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	115 Volts AC Rating .480 Amps. @ 117 V AC
TUNING RANGE—BROADCAST	535-1600KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05	High side to pin #8 (grid of 6SA7. Low side to chassis.	455KC	Point of no interfering signal.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
"	"	1600KC	1600KC	"	A5	" " " "
200 MMFD	High side to ext. ant. Low side to chassis.	1400KC	Tune in 1400 KC signal.	"	A6, A7	" " " "

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7(A)	20	450	4200	FP339	DY-2x20-450	EL-350	AF44J4A	UP6BJ38	■ Filter
(B)	20	450							▲ "
(C)	20	25			M-25-25			BR202A	Cath. Bypass
8	.01	600	4105	TP410	S-6-01	TC-11	684-.01	DT6S1	Line Bypass
9	.001	600	4104	TP404	S-6-001	TC-21	684-.001	DT6D1	6K6 Plate Bypass
10	.01	400	4103	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
11	.005	400	4102	TP408	S-6-005	TC-25	484-.005	DT6D5	Tone Compensation
12	.005	400	4102	TP408	S-6-005	TC-25	484-.005	DT6D5	Audio Coupling
13	.05	400	4101	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Bypass Pwr. Supp.
14	.05	200	4100	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
15	.05	200	4100	TP426	S-4-05	TC-15	484-.05	DT4S5	" "
16	.05	400	4101	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
17	100	500	4000	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
18	100	500	4000	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Diode
19	100	500	4000	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Vol. Cont.
20	100	500	4000	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	Osc. Grid Cap.

CONTROLS

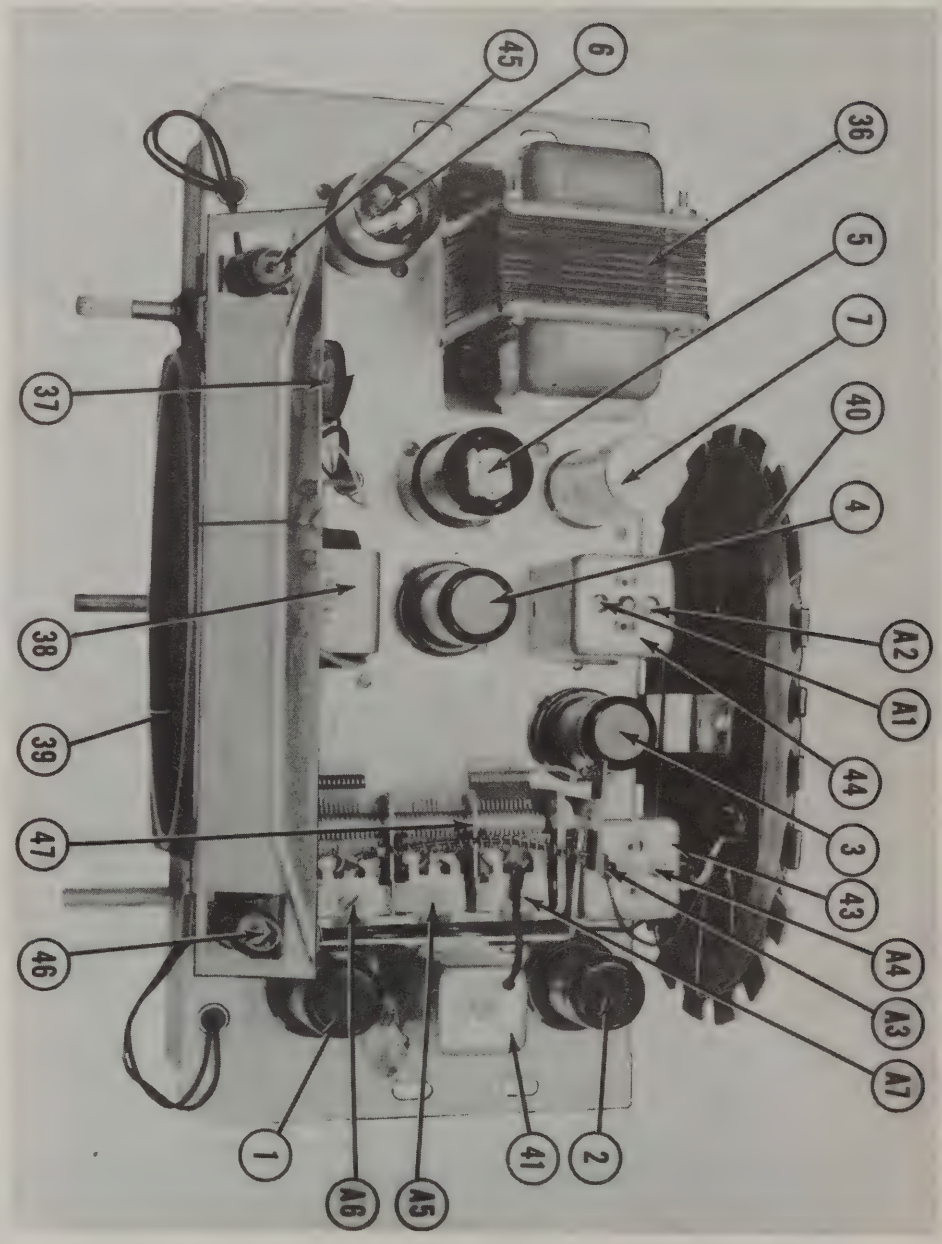
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21(A)	500KΩ	1	4800	MR48	D13-133	M-60-Z	Volume Control
(B)	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions.
22(A)	250KΩ	1	4801	MR44	D13-130	M-64-Z	Tone Control
(B)	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions.
(C)	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	IDENTIFICATION CODES
23	220KΩ	½	4500	BTS-220K	Red-Red-Yl. AVC Network
24	10KΩ	½		BTS-10K	Br.-Blk.-Or. Osc. Grid See Note 1
25	2.2 Meg.	½	4502	BTS-2.2 Meg	Red-Red-Grn. AVC Network
26	10KΩ	2	4503	BT-2-10K	Br.-Blk.-Or. Screen Dropping
27	47KΩ	½	4504	BTS-47K	Yl.-Vi.-Or. Diode Load
28	47Ω	½	4508	BW-½-47	Yl.-Vi.-Blk. 1st AF Cathode
29	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
30	220KΩ	½	4500	BTS-220K	Red-Red-Yl. 1st AF Plate Load
31	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Output Grid Load
32	560Ω	½	4507	BW-½-560	Grn.-Blue-Br. Output Cathode
33	330Ω	½	4509	BW-½-330	Or.-Or.-Br. Audio Feedback
34	15KΩ	½		BTS-15K	Br.-Grn.-Or. Osc. Grid-See Note 1
35	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue AVC Network-See Note 1

Note 1-In some models items 24 and 34 are a single 22KΩ resistor and item 35 is omitted.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	HOFFMAN PART No.	STANCOR PART No.	THORDARSON PART No.	
36	117VAC @ .480A	290-290 @ .033A	5.9VAC @ 2.65A		5000	P-1620*	T-13R20*	*Use universal mounting brackets and drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HOFFMAN PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
37	7750Ω	3.1Ω	580Ω	.92Ω	5100	A-3878	T-14S81		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	HOFFMAN PART No.	JENSEN PART No.		
38	1460Ω	3.1Ω	9000			
39	CONE DIA. 4"x6"	VC DIA. 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
40	Loop Ant.	0Ω	2.2Ω	5201		
41	RF Coil	.5Ω	5.8Ω	5202		
42	Osc. Coil		5.5Ω	5200	14-1040	
43	Input IF	14.4Ω	14.4Ω	5203	16-6658	
44	Output IF	26.5Ω	24Ω	5204	16-6660	

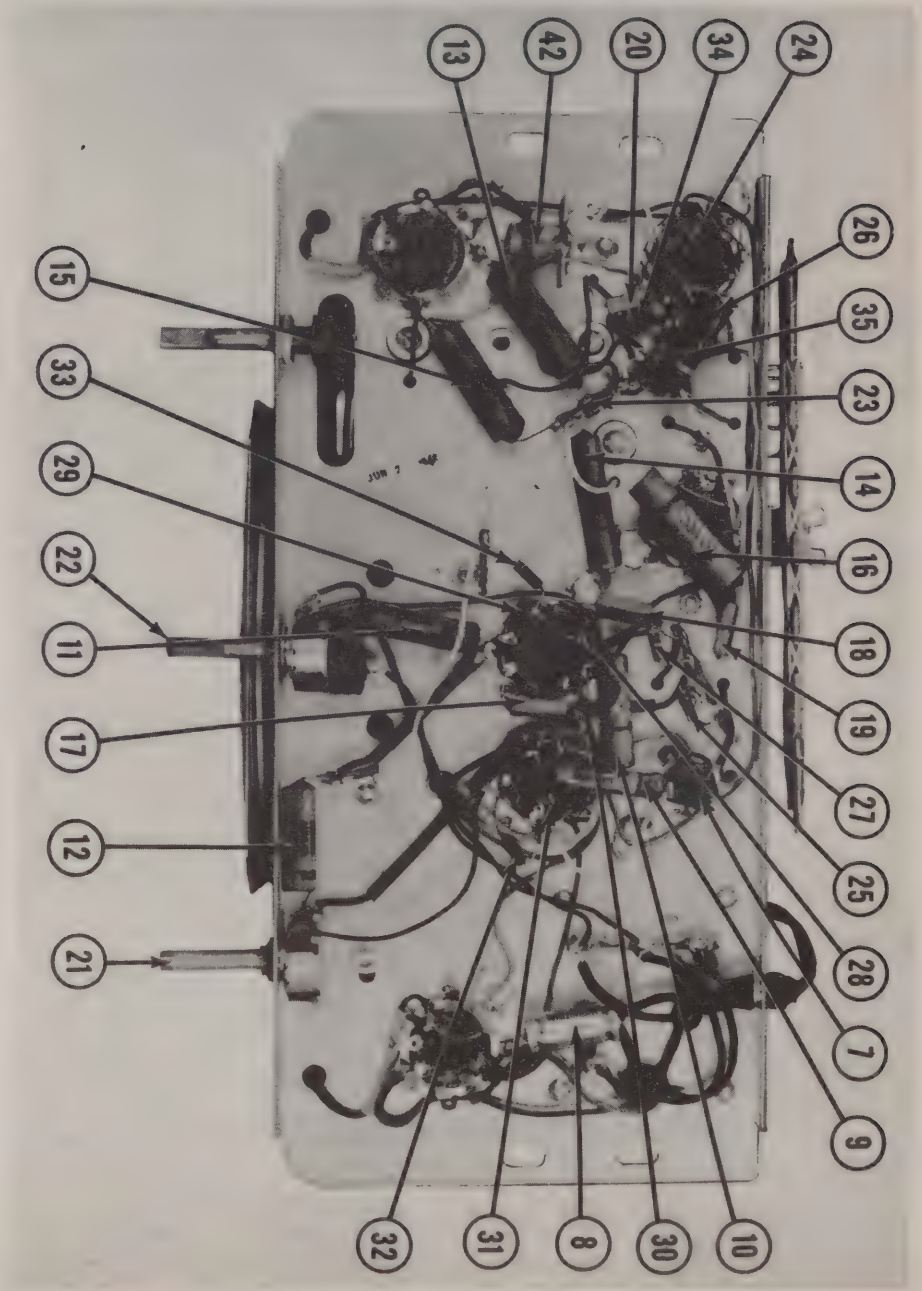
DIAL LIGHT

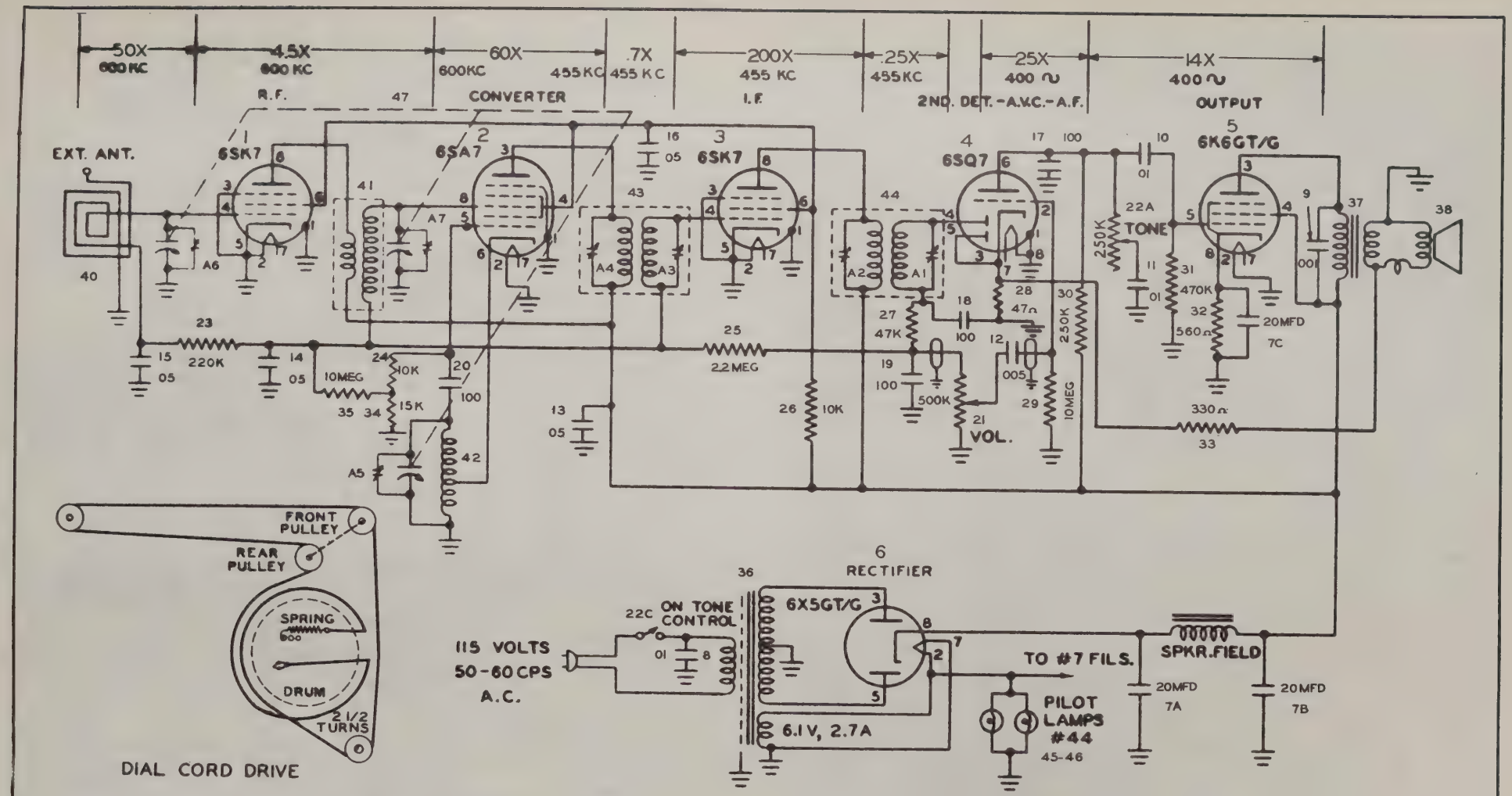
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HOFFMAN PART No.		
45	Bayonet	6-8	0.25	Blue			Type 44
46	Bayonet	6-8	0.25	Blue			" "

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
47	Tuning Cap.		3 Gang Variable Cap. (388-388-180MMF.)

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

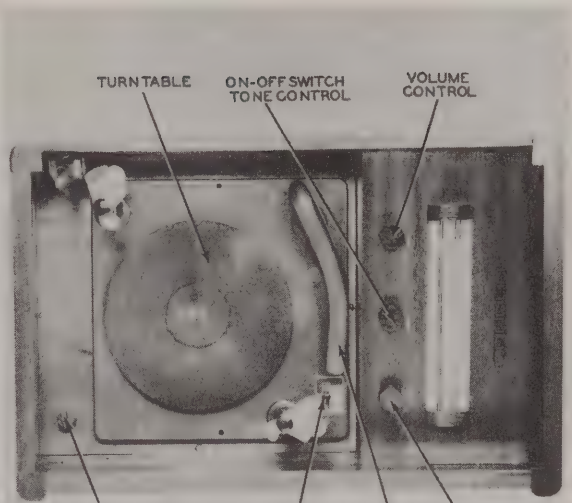
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	0V.	0V.	73V.DC	6V.AC	212V.DC
2	6SA7	0V.	0V.	212V.DC	73V.DC	-4.1V.DC	0V.	6V.AC	-.4V.DC
3	6SK7	0V.	0V.	0V.	-.4V.DC	0V.	73V.DC	6V.AC	212V.DC
4	6SQ7	0V.	-52V.DC	0V.	-22V.DC	0V.	97V.DC	6V.AC	0V.
5	6K6GT	0V.	0V.	200V.DC	217V.DC	0V.	320V.DC	6V.AC	14.5V.DC
6	6X5GT	0V.	6V.AC	245V.AC	0V.	245V.AC	0V.	0V.	325V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	2.2MEG	0Ω	86KΩ	0Ω	86KΩ
2	6SA7	0Ω	0Ω	86KΩ	86KΩ	26KΩ	4Ω	0Ω	1.9MEG
3	6SK7	0Ω	0Ω	0Ω	1.9MEG	0Ω	86KΩ	0Ω	86KΩ
4	6SQ7	0Ω	10MEG	39Ω	560KΩ	39Ω	340KΩ	0Ω	0Ω
5	6K6GT	0Ω	0Ω	86KΩ	86KΩ	520K	86KΩ	0Ω	520Ω
6	6X5GT	0Ω	0Ω	140Ω	INF	140Ω	INF	0Ω	86KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



HOFFMAN
MODEL A500

HOFFMAN
MODEL A500

HOFFMAN MODEL A500

TRADE NAME	Hoffman Model A500 (Chassis No. 107)
MANUFACTURER	Hoffman Radio Corp., 3430 So. Hill St., Los Angeles, California
TYPE SET	AC Operated Combination Automatic Phono. & Superheterodyne Radio - Self Contained Loop Antenna & Automatic Tuning
TUBES (SIX)	Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	117 Volts AC RATING - .500 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1640KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (grid) 6SA7. Low side to chassis.	455KC	High freq. end of dial. (Gang out of mesh).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1650KC	"	"	A5	Adjust for maximum output. Connect output of signal generator to a 6" diameter loop of wire and radiate signal into receiver loop. Place loops approx. 1 foot apart.
	"	1400KC	Tune in 1400 KC signal.	"	A6,A7	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	450	4200	FP339	DY-2x2-450/20-25	EL-350	AF44J4A	UP6BJ38	■ Filter
B	20	450							▲ "
C	20	25						BR202A	Cath. Bypass
8	.01	600	4105	TP410	S-6-01	TC-11	684-.01	DT6S1	Line Bypass
9	.001	600	4104	TP404	S-6-001	TC-21	684-.001	DT6D1	Tone Compensation
10	.005	600	4102	TP408	S-6-005	TC-25	684-.005	DT6D5	" "
11	.01	600	4103	TP410	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
12	.005	600	4102	TP408	S-6-005	TC-25	684-.005	DT6D5	" "
13	.05	200	4100	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
14	.05	400	4101	TP426	S-4-05	TC-15	484-.05	DT4S5	IF Cath. Bypass
15	.05	400	4101	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Bypass Pwr. Supp.
16	.05	400	4101	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
17	.05	200	4100	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
18	100	500	4000	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
19	100	500	4000	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Diode
20	100	500	4000	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Vol. Cont.
21	100	500	4000	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Osc. Grid Cap.
22	500	500	4004	MC245	M0.5-35	1FM-35	1469-.0005	5W5T5	Fixed Tuning PB

CONTROLS

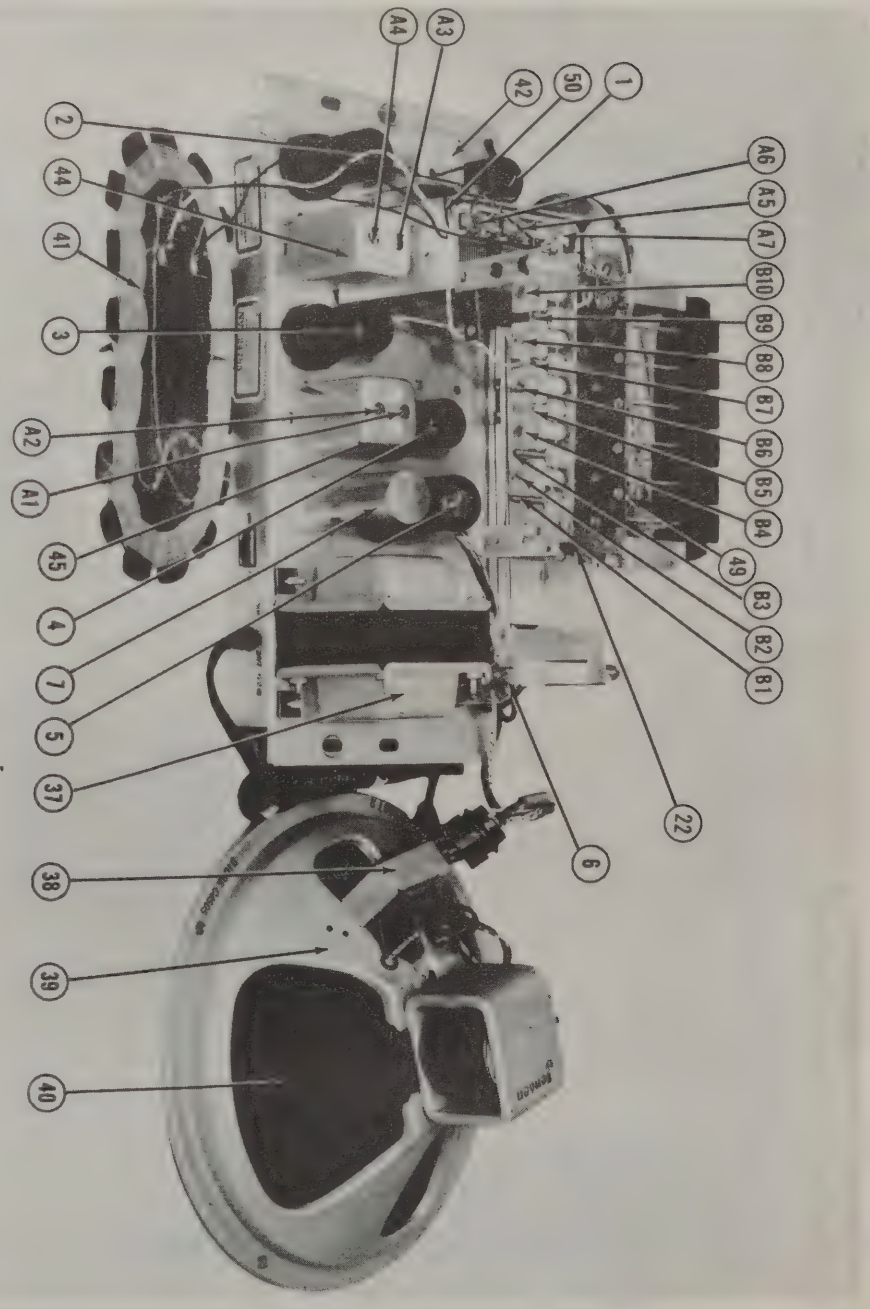
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	4804	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions
24A	250KΩ	1	4805	MR44	D13-130	M-64-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 24A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	IDENTIFICATION CODES
25	220KΩ	½	4500	BTS-220K	Red-Red-Yl. AVC Network
26	22KΩ	½	4501	BTS-22K	Red-Red-Or. Osc. Grid
27	2.2 Meg.	½	4502	BTS-2.2 Meg	Red-Red-Grn. AVC Network
28	10KΩ	2	4503	BT-2-10K	Br.-Blk.-Or. Screen Dropping
29	47KΩ	½	4504	BTS-47K	Yl.-Vi.-Or. Diode Load
30	10 Meg.	½	4505	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
31	47Ω	½	4508	BW-½-47	Yl.-Vi.-Blk. 1st AF Cathode
32	220KΩ	½	4500	BTS-220K	Red-Red-Yl. 1st AF Plate Load
33	330Ω	½	4509	BW-½-330	Or.-Or.-Br. Feedback
34	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Output Grid
35	500Ω	½	4507	BTS-560	Grn.-Br.-Br. Output Cathode
36	220KΩ	½	4500	BTS-220K	Red-Red-Yl. Series Phono - See Note 1

Note 1 - Located on phono switch mounted in cabinet.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	HOFFMAN PART No.	STANCOR PART No.	THORDASON PART No.	
37	117VAC @ .480A	580VCT @ .063A	5.9VAC @ 2.65A		5000	P-6120*	T-13R20*	*Use universal mounting brackets and drill new mounting holes

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HOFFMAN PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	10,500Ω	6.6Ω	470Ω	1Ω	Part of 9012	A-3850	T-14S851†		†Use wider mounting holes provided.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			HOFFMAN PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
39	1350Ω	6.6Ω	9012	ST-441		
	CONE DIA.	VC DIA.				
40	9-3/8"	11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
41	Loop Ant.	.2Ω	1.7Ω	5224		
42	RF Coil	.6Ω	5.2Ω	5212	14-7558	
43	Osc. Coil		5.5Ω	5200	14-1040	
44	Input IF	14.4Ω	14.4Ω	5203	16-6658	
45	Output IF	26.5Ω	24Ω	5204	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HOFFMAN PART No.		
46	Bayonet	6-8	0.25	Blue			Type 44
47	"	6-8	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
48	Switch	6001	Radio-Phono
49	Tuning Assby.	55200	Pushbutton
50	Tuning Cap.	4400	3 Gang Variable (388-388-180MMF)
	Switch	6000	Pushbutton-Auto. Tun.
	Record Player	9016	Automatic

PUSHBUTTON ADJUSTMENTS

The pushbuttons and associated adjustments from rear to front cover the following frequency ranges: 550 to 800KC, 550 to 800KC, 720 to 1200KC, 720 to 1200KC, 900 to 1500KC. To set up pushbuttons to five desired stations, proceed as follows:

1 - Turn on receiver and allow it to operate for fifteen minutes or longer.

2 - Remove five desired call letter tabs and five transparent tab covers supplied with receiver. (If DIAL tab has not been inserted, remove with call letter tabs and insert in front pushbutton.)

3 - Select the lowest frequency station desired that falls within tuning range of rear pushbutton and adjustments B1, B2 (550 to 800KC).

4 - Depress DIAL pushbutton and tune in selected station.

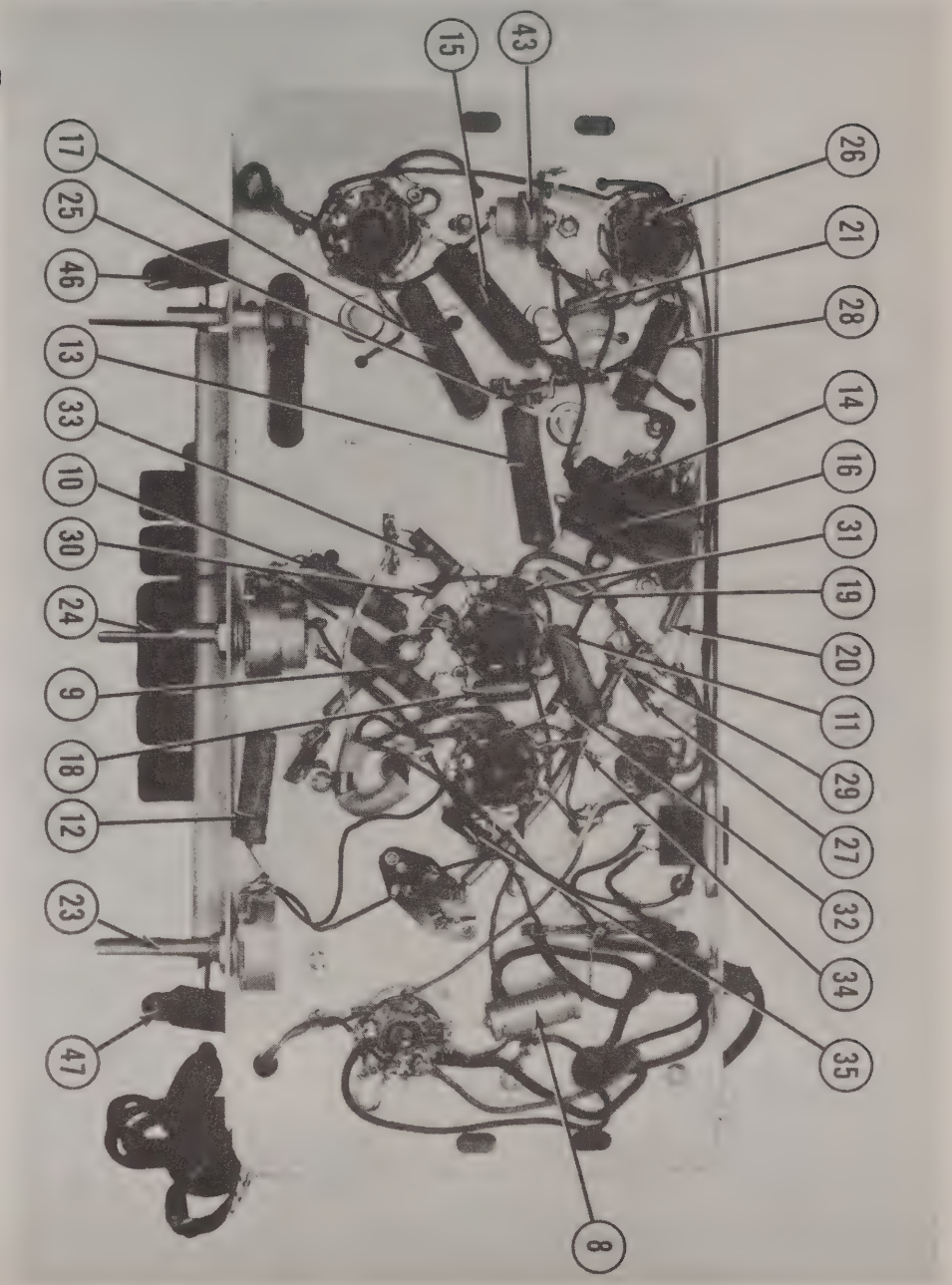
5 - Depress pushbutton at rear and adjust B1 until station is accurately tuned in.

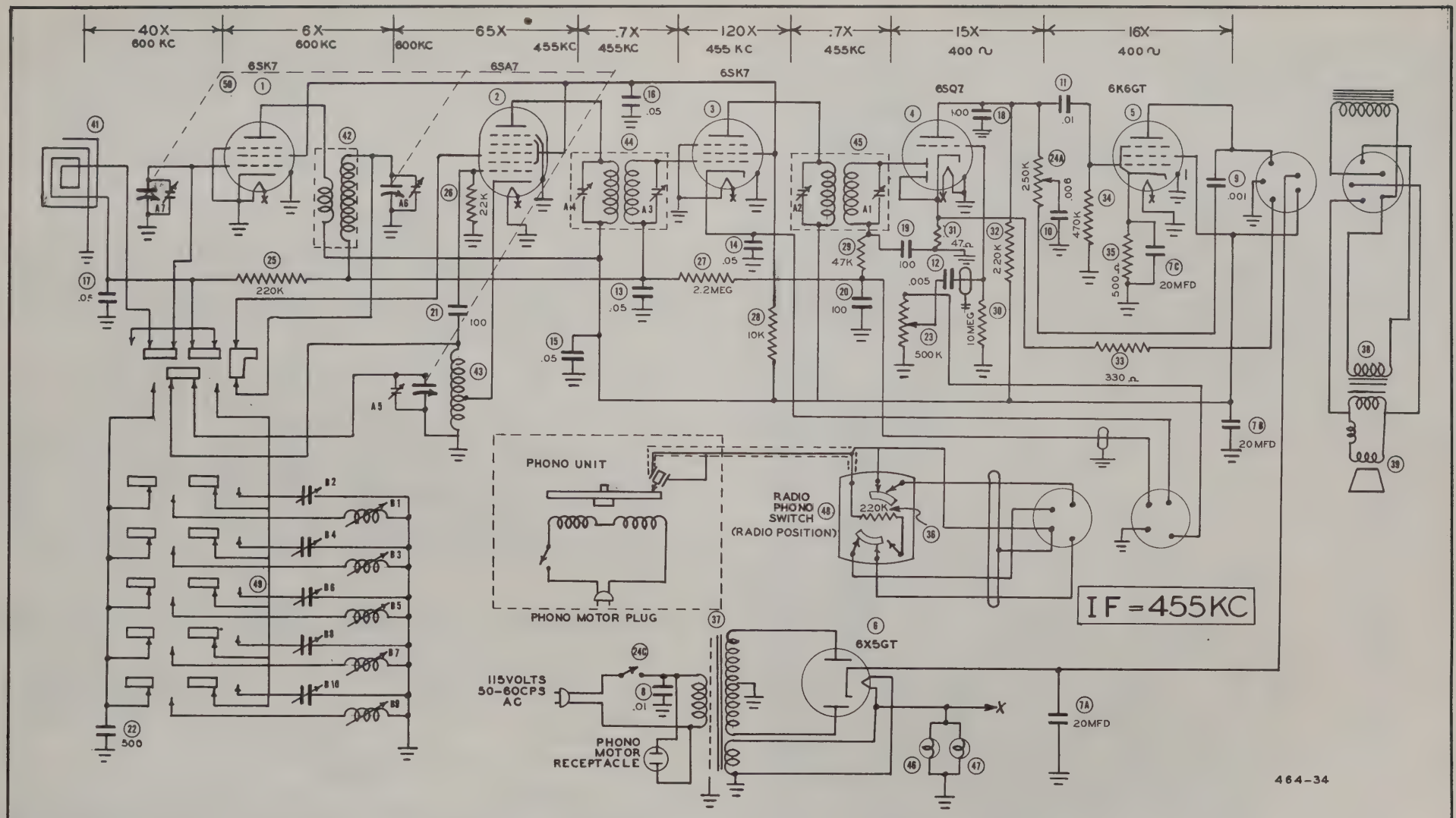
6 - Adjust B2 for maximum volume of station.

7 - Insert proper call letter tab and transparent cover.

8 - To set up remaining pushbuttons, proceed in the same manner. Adjust B3, B5, B7 and B9 to tune in station and B4, B6, B8 and B10 for maximum volume of station. Always select a station within tuning range of pushbutton and associated adjustments.

CHASSIS—BOTTOM VIEW





NOTE: READINGS TAKEN WITH JUMPERS ACROSS GREEN TO GREEN AND BLACK TO WHITE ON PHONO SOCKET.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	0V.	0V.	79V.DC	6V.AC	230V.DC
2	6SA7	0V.	0V.	230V.DC	79V.DC	-5V.DC	0V.	6V.AC	-.27V.DC
3	6SK7	0V.	0V.	0V.	-.27V.DC	0V.	79V.DC	6V.AC	230V.DC
4	6SQ7	0V.	-.55V.DC	.02V.DC	-.32V.DC	.02V.DC	112V.DC	6V.AC	0V.
5	6K6GT	0V.	0V.	220V.DC	230V.DC	0V.	330V.DC	6V.AC	17V.DC
6	6X5GT	0V.	6V.AC	290V.AC	0V.	290V.AC	0V.	0V.	330V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	0Ω	0Ω	175KΩ	0Ω	165KΩ
2	6SA7	0Ω	0Ω	165KΩ	175KΩ	18.6KΩ	.5Ω	0Ω	200KΩ
3	6SK7	0Ω	0Ω	0Ω	200KΩ	0Ω	175KΩ	0Ω	165KΩ
4	6SQ7	0Ω	8 MEG	51Ω	510KΩ	51Ω	385KΩ	0Ω	0Ω
5	6K6GT	0Ω	0Ω	165KΩ	165KΩ	430KΩ	165KΩ	0Ω	530Ω
6	6X5GT	0Ω	0Ω	145Ω	1NF	135Ω	0Ω	0Ω	165KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MANTOLA
MODEL R643W

MANTOLA
MODEL R643W

MANTOLA MODEL R643W

TRADE NAME	Mantola Model R643-W
SUPPLIER	The B. F. Goodrich Co., 500 South Main St., Akron, Ohio
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	90 Volt "B" Battery - 1.5 Volt "A" Battery in Pack Form - Ensign AB48 or equivalent.
RATING	12.7 MA @ 90V DC plus .250 Amps. @ 1.5V DC
TUNING RANGE—BROADCAST	535-1630KC

ALIGNMENT INSTRUCTIONS

With chassis in cabinet check setting of dial pointer at extreme high and low freq. end of dial. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to top cap (grid) 1A7. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
.0002 MFD	High side to ant. lead. Low side to chassis.	1630KC	"	"	A5,A6.	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	Iron Core	Adjust osc. core then ant. core for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MANTOLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MANTOLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	4	150	67A4-2	TC40	M-4-150	UT-41	PRS150-4	BR415	RF Bypass Pwr. Supp.
6	.005	600	64B1-12	TP408	S-6-005	TC-25	684-005	DT6D5	3Q5 Plate Bypass
7	.01	400	64B1-25	TP421	S-4-01	TC-11	464-01	DT4S1	Audio Coupling
8	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	" "
9	.05	200	64B1-32	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
10	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	IF Plate Bypass
11	.002	600	64B1-14	TP405	S-6-002	TC-22	684-002	DT6D2	IF Grid Bypass
12	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Screen Bypass
13	.01	400	64B1-25	TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
14	250	500	65B7-22	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
15	250	500	65B7-22	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	RF Bypass Diode
16	100	500	65B7-17	MC235	M0.5-31	1FM-31	1468-0007	5W5T1	Osc. Grid Capacitor
17	800	500	65B5-31	MC251	M0.3-38	MS-38	1479-0008	1W5T8	Osc. Feedback
18	800	500	65B5-31	MC251	M0.3-38	MS-38	1479-0008	1W5T8	Fixed Padder
19	200	500		MC237	M0.5-32	1FM-32	1468-0002	5W5T2	Fixed Trimmer *
20	120	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	" " *

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MANTOLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	1 Meg.	1	75B1-1	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 21A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

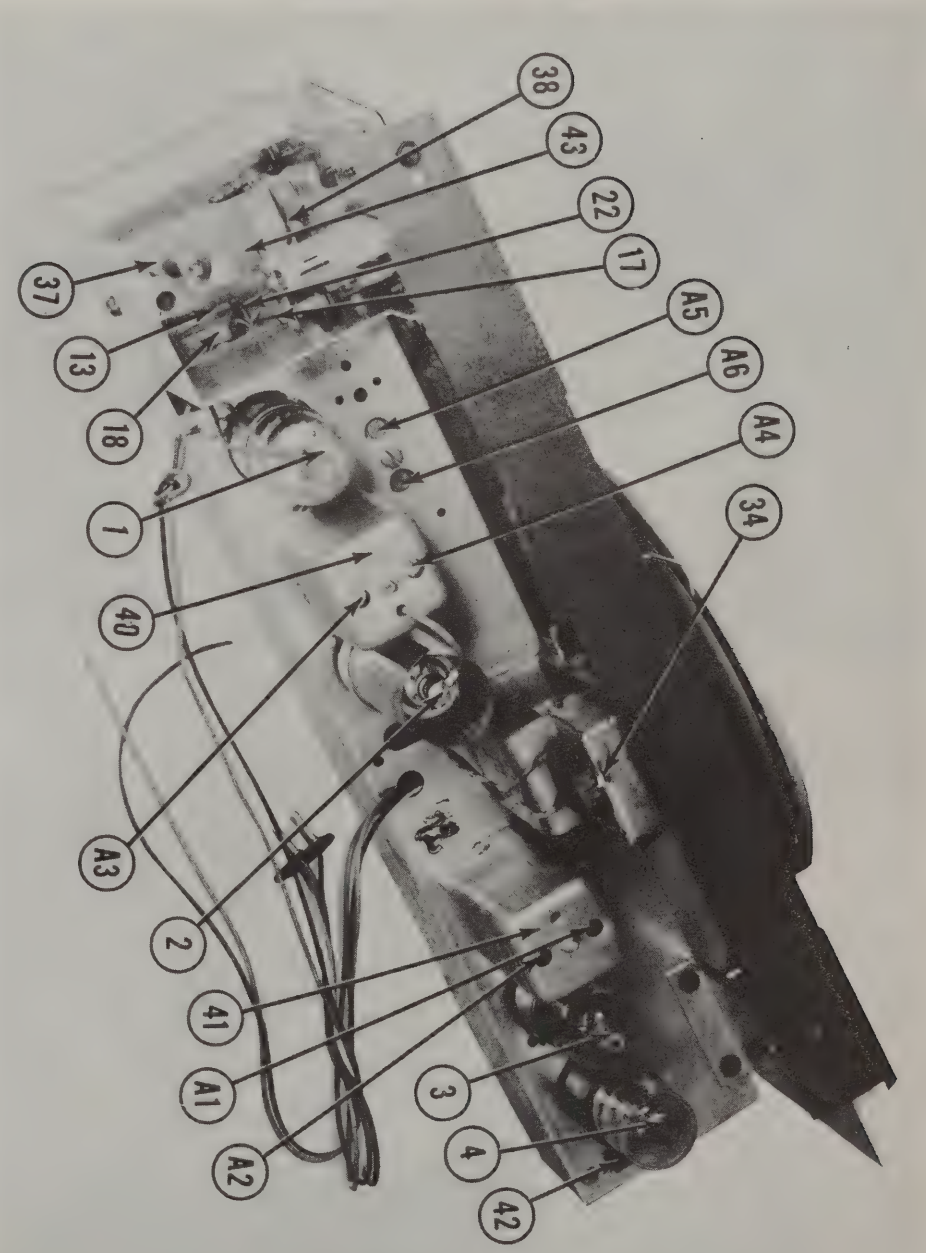
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MANTOLA PART No.	IRC PART No.	IDENTIFICATION CODES
22	15KΩ	½	60B8-153	BTS-15K	Br.-Grn.-Or. Ant. Loading
23	470KΩ	¼	60B2-474	BTS-470K	Yl.-Vi.-Yl. AVC Network
24	220KΩ	½	60B8-224	BTS-220K	Red-Red-Yl. Osc. Grid
25	33KΩ	½	60B8-333	BTS-33K	Or.-Or.-Or. Mixer Screen Dropping
26	4.7 Meg.	¼	60B2-475	BTS-4.7 Meg	Yl.-Vi.-Grn. IF Grid
27	2200Ω	¼	60B2-222	BTS-2200	Red-Red-Red IF Plate Filter
28	2.2 Meg.	¼	60B2-225	BTS-2.2 Meg	Red-Red-Grn. AVC Network
29	4.7 Meg.	¼	60B2-475	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
30	1 Meg.	¼	60B2-105	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
31	1 Meg.	¼	60B2-105	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
32	390Ω	¼	60B2-391	BW-½-390	Or.-White-Br. Fixed Bias
33	.75Ω	¼	61A2-1	BW-2-.68	Blue-Gray-Silver Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MANTOLA PART No.	STANCOR PART No.	THORDAR'N† PART No.	INSTALLATION NOTES
34	6000Ω	2.2Ω	700Ω	.65Ω	Part of 78B5	A-3878†	T-14S84†	†Bend mounting tabs down file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

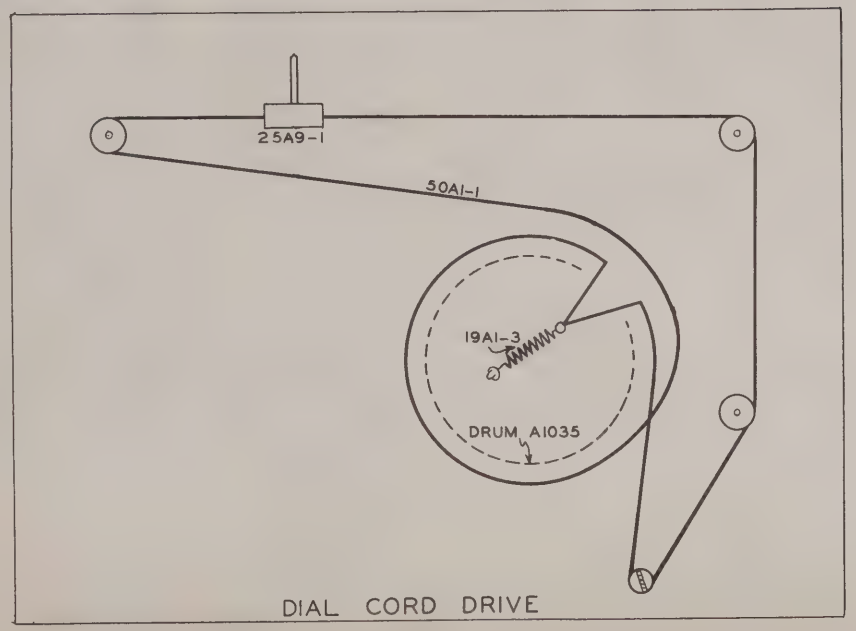
ITEM No.	RATINGS		REPLACEMENT DATA MANTOLA PART No.	REPLACEMENT DATA JENSEN PART No.	INSTALLATION NOTES
	FIELD	VC IMP.			
35	PM	2.2Ω	78B5	ST-109	
	CONE DIA.	VC DIA.			
36	5-7/8"	9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MANTOLA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
37	Ant. Coil		3.5Ω	AC105-1		
38	Osc. "		8Ω	AB104-4		
39	RF Choke	16Ω		AB103-1		
40	Input IF	14.5Ω	18Ω	72b5	16-3358	
41	Output "	13.5Ω	13.5Ω	72b6	16-6330	

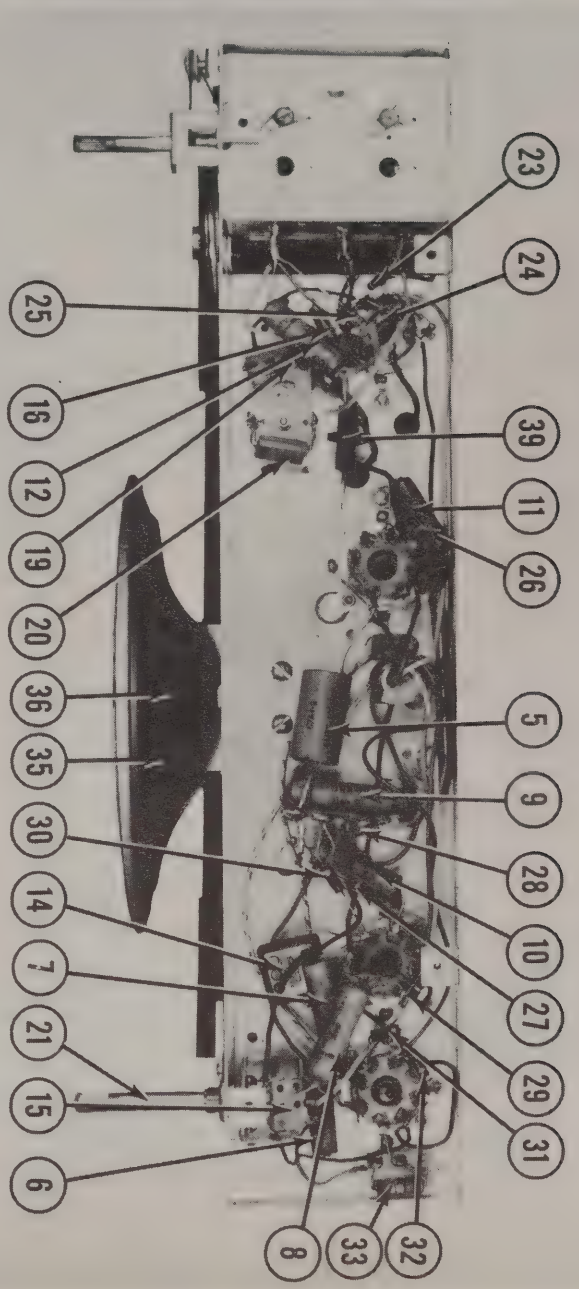
MISCELLANEOUS

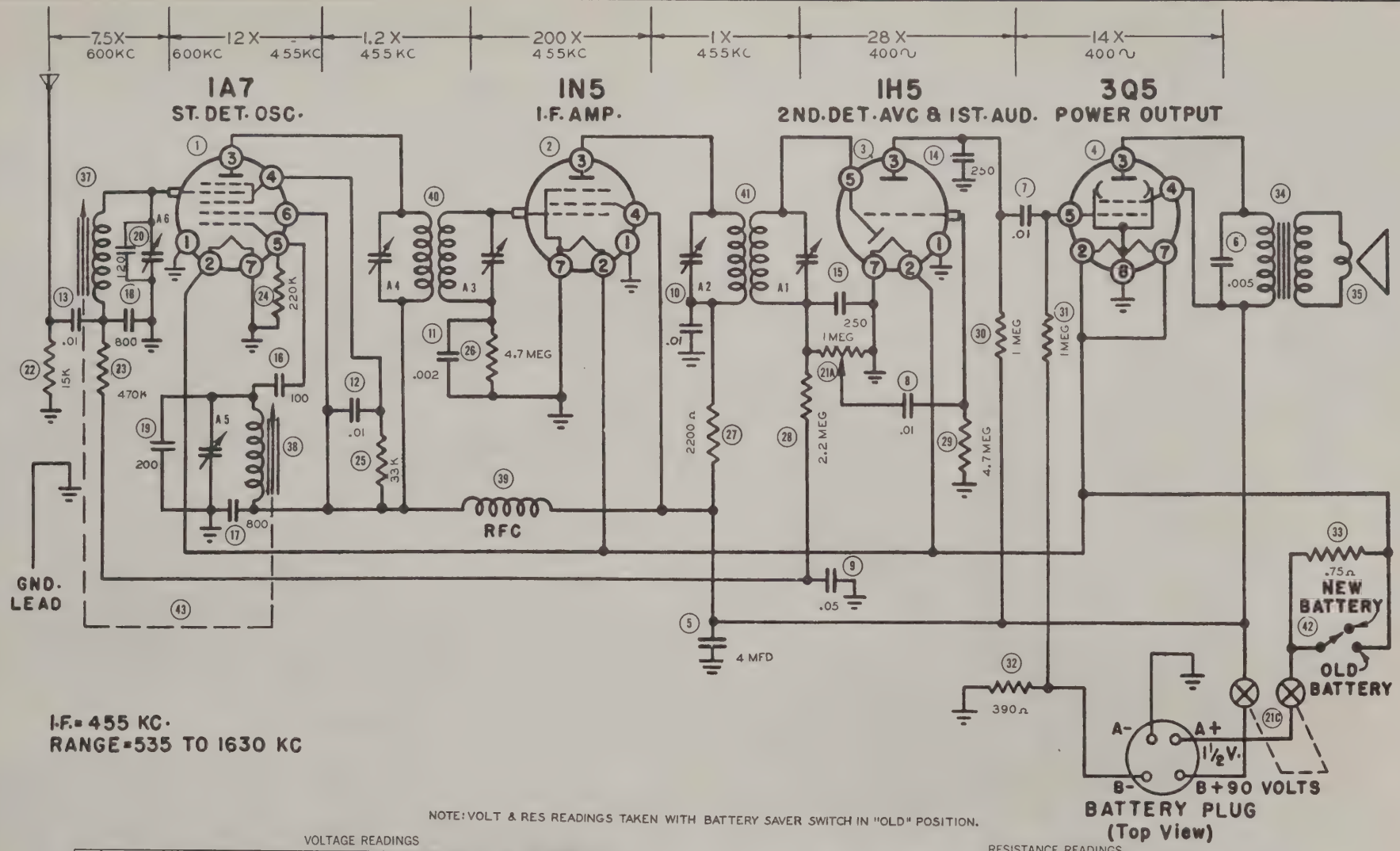
ITEM No.	PART NAME	MANTOLA PART No.	NOTES
42	Switch	77A1-6	SPST Economizer
43	Tuner Assby.	A1028	Permeability Tuning Assby.
A5	Trimmer	6689-1	Osc. Adjustment
A6	"		Ant. Adjustment
	Cabinet	35C25	
	Battery Cable	A1026	Complete with plug
	Knob	33A7-2	
	Dial Scale	21B13	Glass



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





NOTE: VOLT & RES READINGS TAKEN WITH BATTERY SAVER SWITCH IN "OLD" POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.57V.DC	87V.DC	55V.DC	-1.5V.DC	87V.DC	0V.	0V.	0V.
2	1N5GT	0V.	1.57V.DC	83V.DC	87V.DC	0V.	87V.DC	0V.	0V.	0V.
3	1H5GT	0V.	1.57V.DC	55V.DC	83V.DC	-2V.DC	0V.	0V.	0V.	0V.
4	3Q5GT	0V.	1.57V.DC	82V.DC	87V.DC	-.4V.DC	-5.4V.DC	0V.	0V.	

RESISTANCE READINGS

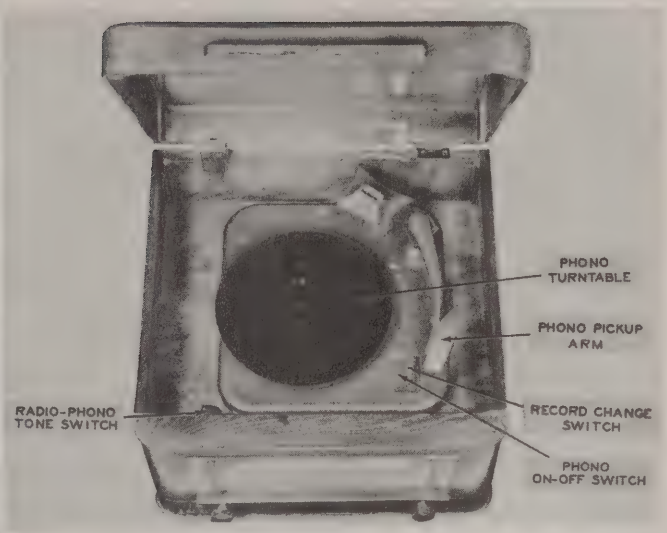
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	*	165 KΩ	198 KΩ	230 KΩ	165 KΩ	*	3.7MEG	4.2MEG
2	1N5GT	0Ω	*	167 KΩ	165 KΩ	INF	165 KΩ	*	5.1 MEG	5.1 MEG
3	1H5GT	0Ω	*	1.2MEG	165 KΩ	1.05MEG	5.1 MEG	*	INF	5.1MEG
4	3Q5GT	0Ω	*	165 KΩ	165 KΩ	1.2MEG	410 Ω	*	0Ω	

* DO NOT USE OHMMETER TO CHECK FILAMENT RES.

464-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 1.5 volt battery bias substituted for measurement.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.



MOTOROLA
MODEL 55F11

MOTOROLA
MODEL 55F11

MOTOROLA MODEL 55F11

TRADE NAME	Motorola Model 55F11 (Chassis HS-30)
MANUFACTURER	Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	AC Combination Auto. Phono & Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7B5 Power Output, 5Y3GT Rectifier.
POWER SUPPLY	117 Volt AC — RATING - .485 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1620KC — SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	Low freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	"	1650KC	High freq. end of dial. Rotors out of mesh.	"	A5	" " " "
	Loop	1400KC	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. Connect generator output to loop of few turns of wire and radiate signal into receiver loop.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	7Q7	7Q7	8AL	
2	IF Amp.	7A7	7A7	8V	
3	Det.-AVC-AF	7B6	7B6	8W	
4	Power Output	7B5	7B5	6AE	
5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	350	23A74827	FP331	DY-2x30-350/50-50	EL-323	AF32K4A	UP6BJ38	■ Filter
B	30	300							▲ "
C	20	25						BR202A	"
7	.005	600	8S9813-D	TP408	S-6-005	TC-25	684-.005	DT6D5	7B5 Plate Bypass
8	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Coupling
9	.005	600	8S9813-D	TP408	S-6-005	TC-25	684-.005	DT6D5	Tone Compensation
10	.005	600	8S9813-D	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
11	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	7Q7 Plate Bypass
12	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
13	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
14	500	500		MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
15	500	500		MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	RF Bypass Diode
16	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Phono Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	1 Meg.	1	18A70032-A	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

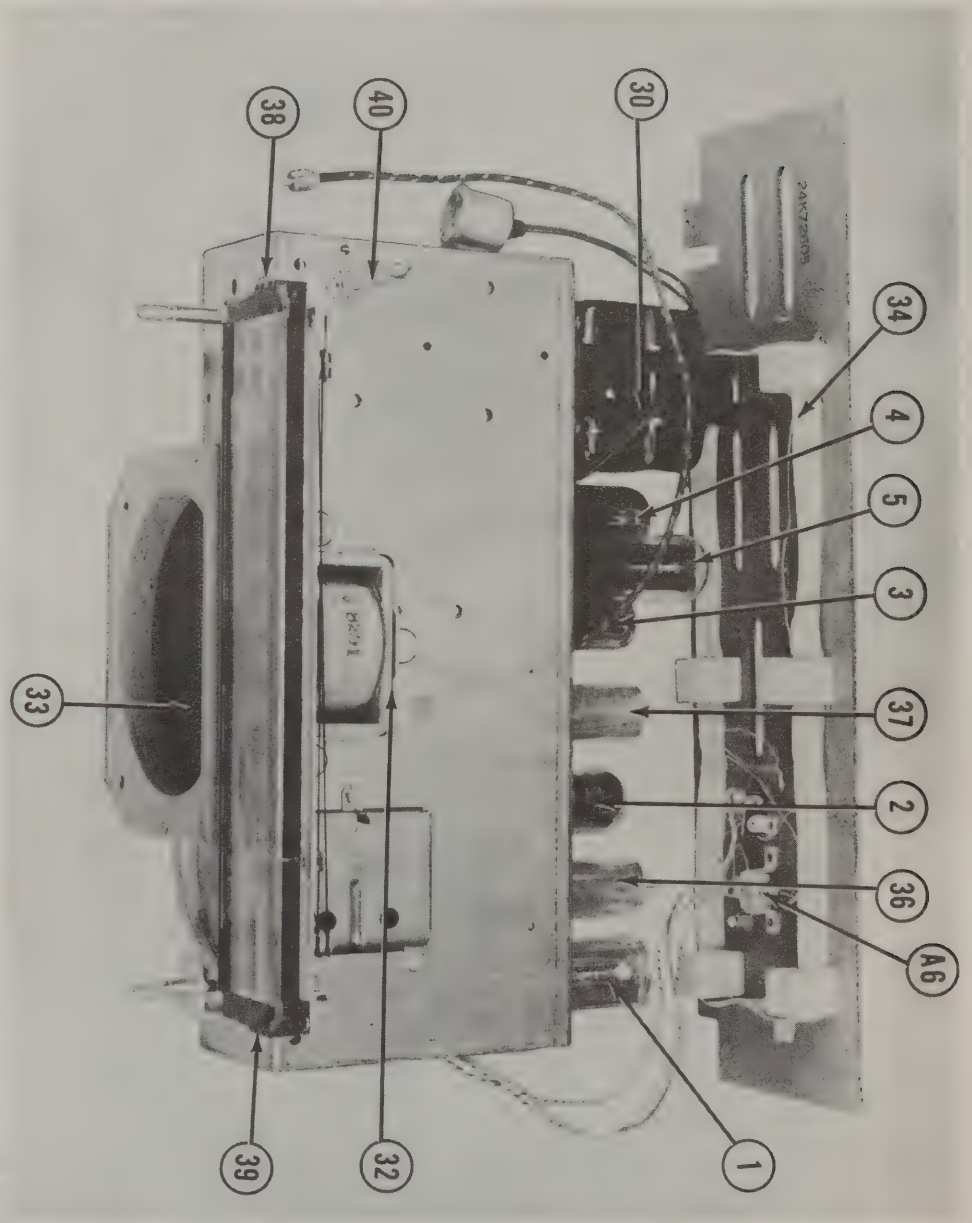
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
18	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
19	180Ω	½		BW-½-180	Br.-Gray-Br. Osc. Cathode
20	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	22KΩ	½		BTS-22K	Red-Red-Or. Screen Dropping
22	1000Ω	½		BTS-1000	Br.-Blk.-Red Plate Filter
23	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
24	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
26	270Ω	1		BW-1-270	Red-Vi.-Br. Fixed Bias
27	15Ω	1		BW-1-15	Br.-Grn.-Blk. Fixed Bias
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Phono Load

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MOTOROLA PART No.	STANCOR PART No.	THORDASON PART No.	INSTALLATION NOTES
30	117VAC @ .48A	550V CT @ .054A	5V @ 1.82A	6.3V @ 2.0A	25B21248	P-6119#	T-13R11#	#Use the universal mounting brackets supplied with this unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
31	6750Ω	.5Ω	460Ω	.5Ω	25B21175	A-3856	T-13542*		*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.		
32	FIELD RES. 1275Ω	VC IMP. 3Ω	50B71732	ST-449†		†Improvise mounting bracket.
33	CONE DIA. 5"	VC DIA. 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
34	Loop Ant.	.3Ω	3.5Ω	24K72505		
35	Osc. Coil		9Ω		14-1040	
36	Input IF	16Ω	14.9Ω		16-6666	Drill mtg. holes
37	Output IF	15.5Ω	16.2Ω		16-6667	Drill mtg. holes

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
38	Bayonet	6-8	0.25	Blue			Type 44
39	"	6-8	0.25	"			" "

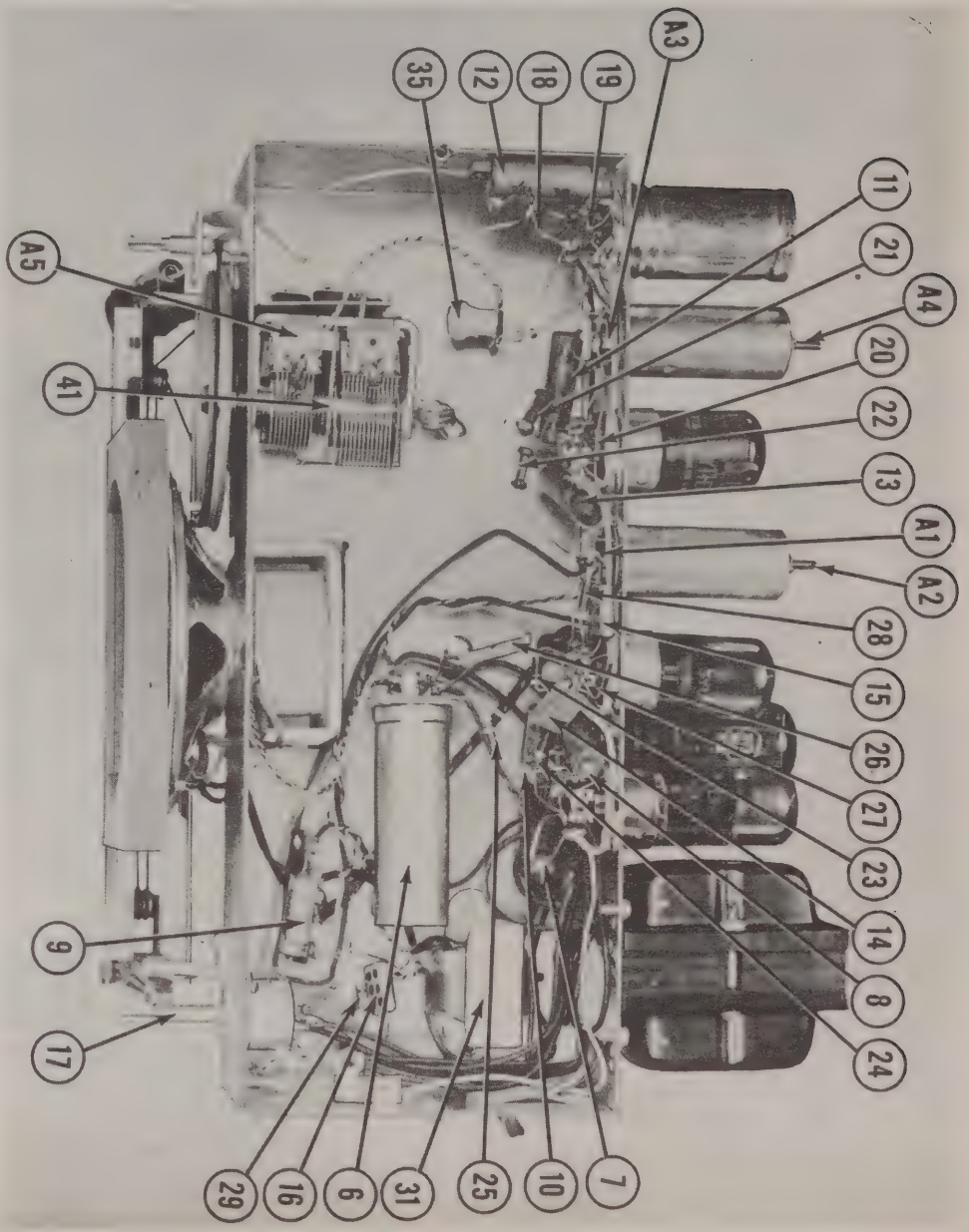
MISCELLANEOUS

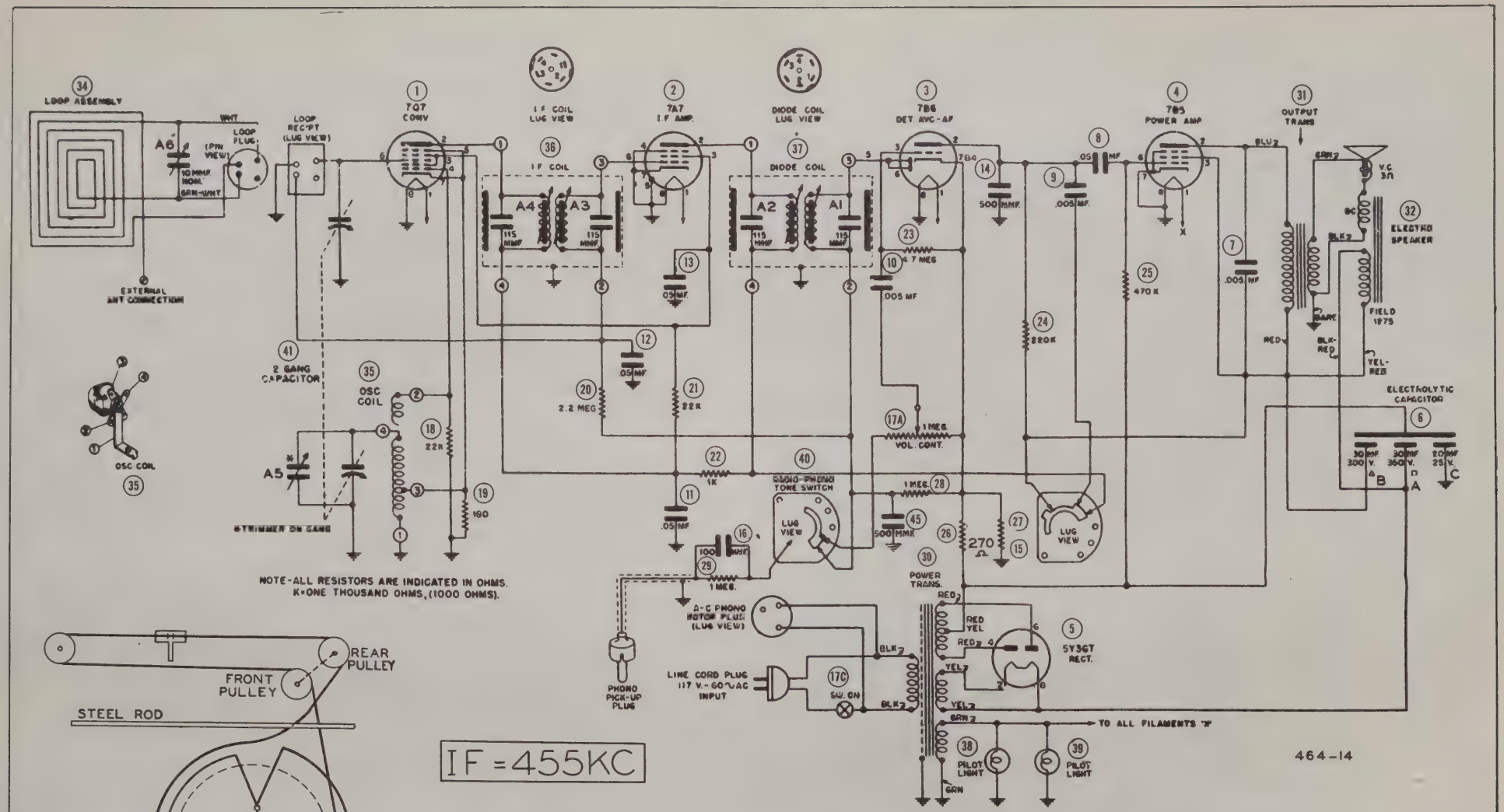
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
40	Switch		Radio - Phono - Tone
41	Tuning Cap.		2 Gang Variable Cap.

DISASSEMBLY INSTRUCTIONS

1 - Remove volume control, tuning control, and radio-phono-tone switch push-on type knobs.
2 - Disconnect antenna plug from chassis.
3 - Remove six screws holding antenna loop to cabinet. Remove antenna.
4 - Disconnect phono-motor plug.
5 - Disconnect phono pick-up plug from changer base.
6 - Remove 7 screws from bottom of cabinet and lift out chassis.
7 - Remove 2 screws holding chassis board to chassis. Remove chassis board.

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7Q7	6.3V.AC	220V.DC	67V.DC	-1.7V.DC	0V.	0V.	0V.	0V.
2	7A7	6.3V.AC	237V.DC	67V.DC	0V.	0V.	0V.	0V.	0V.
3	7B6	6.3V.AC	112V.DC	-1V.DC	-.75VDC	-1.2V.DC	-1.2V.DC	-.75V.DC	0V.
4	7B5	6.3V.AC	220V.DC	237VDC	1.2V.DC	0V.	-5V.DC	0V.	0V.
5	5Y3GT	0V.	300V.DC	0V.	295V.AC	0V.	295V.AC	0V	300V.DC

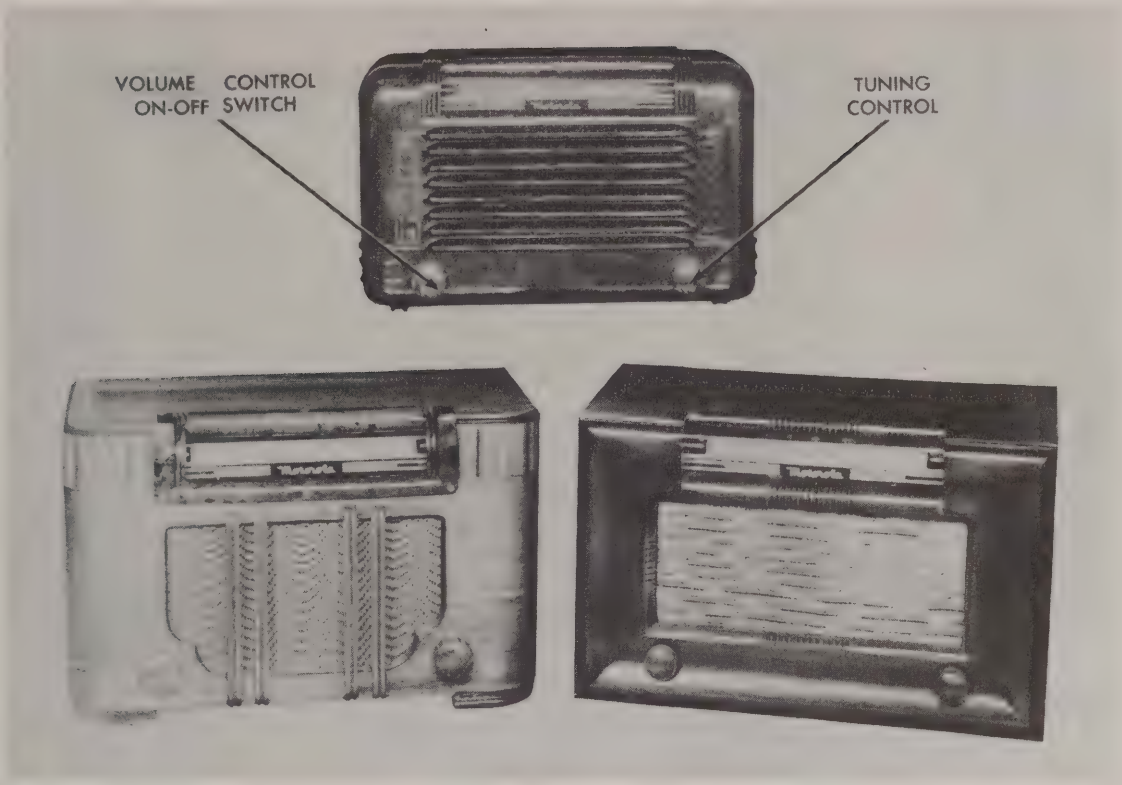
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7Q7	0Ω	150KΩ	170KΩ	24KΩ	1.2Ω	3 MEG	1.2Ω	0Ω
2	7A7	0Ω	150KΩ	170KΩ	0Ω	0Ω	3 MEG	0Ω	0Ω
3	7B6	0Ω	370KΩ	4 MEG	14Ω	450KΩ	450KΩ	14Ω	0Ω
4	7B5	0Ω	150KΩ	150KΩ	800KΩ	0Ω	540KΩ	0Ω	0Ω
5	5Y3GT	INF	150KΩ	INF	520Ω	INF	540Ω	INF	150KΩ

Stage gain measurements are omitted at the request of the manufacturer.

1 - DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA
MODELS 65X11A, 65X12A,
65X13A, 65X14A, 65X14B



MOTOROLA
MODELS 65X11A, 65X12A,
65X13A, 65X14A, 65X14B

MOTOROLA MODEL 65X14A

TRADE NAME Motorola Model 65X11A, 65X12A, 65X13A, 65X14A, 65X14B (Chassis HS-2)
MANUFACTURER Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX) Types, 12SJ7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 117 Volts AC-DC Rating .250 Amps. @ 117V AC
TUNING RANGE—BROADCAST 538-1720KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (signal grid) of 12SA7. Low side to B-.	455KC	Low freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, isolating capacitor must be connected between generator ground lead and receiver B-. Also decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
"	High side to pin #4 of 12SJ7GT. Low side to B-.	"	"	"	A5	Adjust for minimum output. Use isolation instructions given for A1,A2,A3 and A4.
"	"	1720KC	High freq. end of dial. Rotors out of mesh.	"	A6	Adjust for maximum output. Use isolation instructions given for A1,A2,A3 and A4.
	Loop	1400KC	Tune to 1400 KC signal.	"	A7	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop.

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SJ7GT	12SJ7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	150	23A70008	TCD45	M-2x2-150	TA220	PRS150-20-20	BRD2215	Filter Red Dot
B	20	150							Filter
8	.15	200	8A72686	TP417	S-4-2	TC-2	484-.15	DT4P2	Line Isolating
9	.05	400		TP426	S-4-05	TC-15	484-.05	DT4S5	Line Bypass
10	.02	400		TP423	S-4-02	TC-12	484-.02	DT4S2	35L6GT Plate Bypass
11	.03	200	8S9833A	TP424	S-6-03	TC-13	484-.03	DT4S3	Audio Coupling
12	.01	100	8S9801	TP421	S-4-01	TC-11	484-.01		Audio Coupling
13	.05	100	8S9805	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
14	.05	100	8S9805	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
15	.03			TP423	S-6-03	TC-13	484-.03	DT4S3	Antenna Coupling*
16	250	500		MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
17	250	500		MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Diode Load
18	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Coupling

*Used in some models

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1	18A72888	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A Per Instruction
C	Switch		Not Req.	M26	41	SW-A	" " " " "

RESISTORS

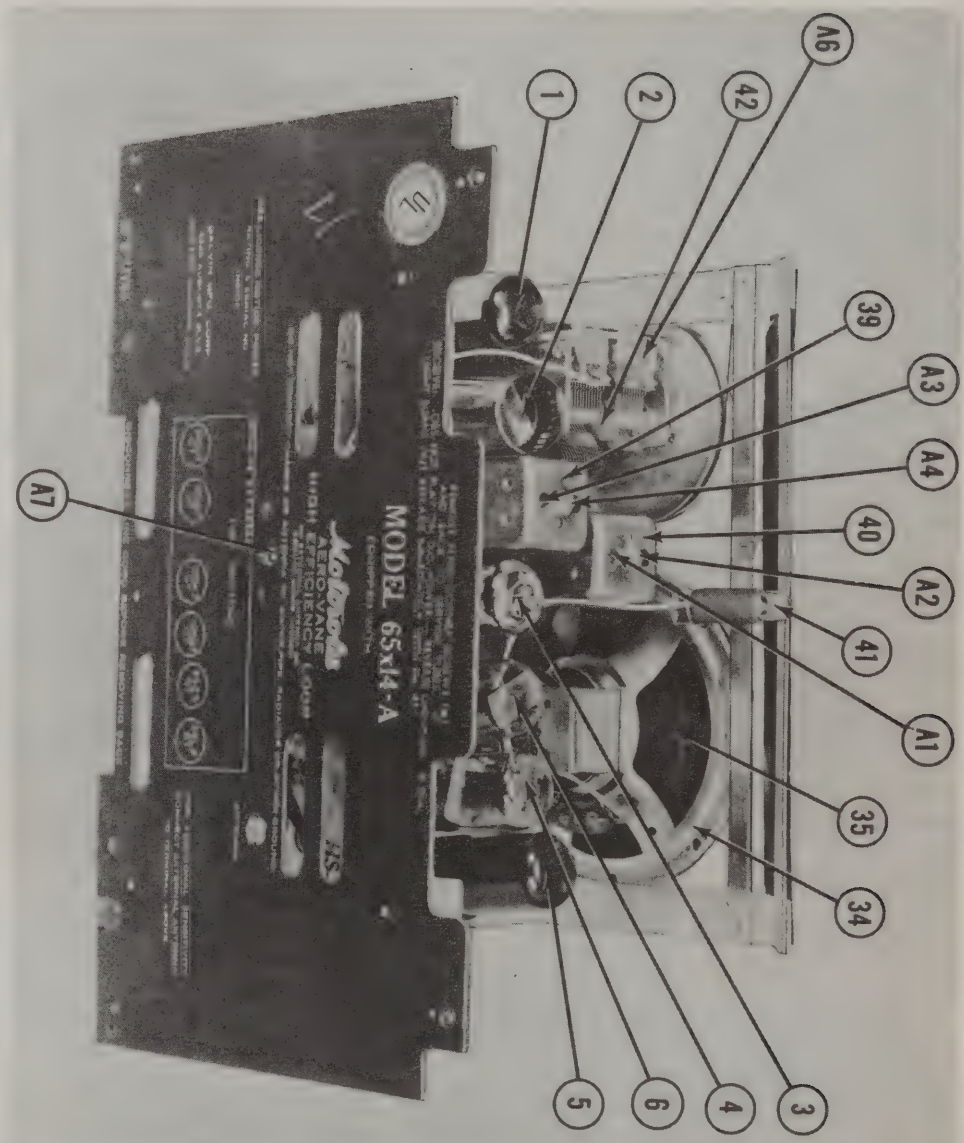
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
21	10KΩ	½		BTS-10K	Br.-Blk.-Or. RF Plate Load
22	22KΩ	½		BTS-22K	Red-Red-Or. Converter Grid
23	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
24	4.7 Meg.	½		BTS-4.7 Meg	Yl.-Vl.-Grn. AVC Network
25	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. " "
26	1 Meg.	½		BTS-1 Meg	Br.-Blk.-Grn. " "
27	47KΩ	½		BTS-47K	Yl.-Vl.-Or. Diode Load
28	3.3 Meg.	½		BTS-3.3 Meg	Or.-Or.-Grn. 1st AF Grid
29	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load
30	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. Output Grid
31	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
32	33Ω	½		BW-½-33	Or.-Or.-Blk. Rectifier Ballast †

† Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	2400Ω	3.6Ω	242Ω	.86Ω	25A20503	A-3876	T-14S82		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA MOTOROLA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.				
34	450Ω	3Ω	50B23173	ST-450‡		‡Drill and tap the magnet frame to match the original or improvise new mounting bracket.
	CONE DIA.	VC DIA.				
35	4-13/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

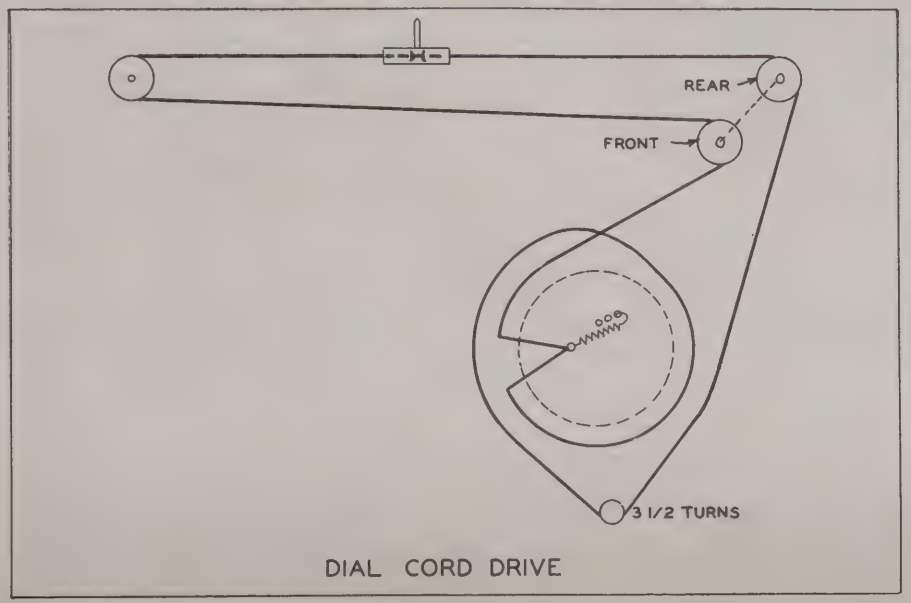
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
36	Loop Ant.		3.4Ω	1X74464		
37	Osc. Coil	1Ω	9Ω		14-1040	Add 50MMFD cond. from grid to #1 lug.
38	Wave Trap		72Ω			
39	Input IF	14Ω	16Ω	1X26946	16-6658	
40	Output IF	13Ω	11.5Ω	1X26943	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MOTOROLA PART No.		INSTALLATION NOTES
41	Bayonet	6-8	0.15	Brown			Type 47

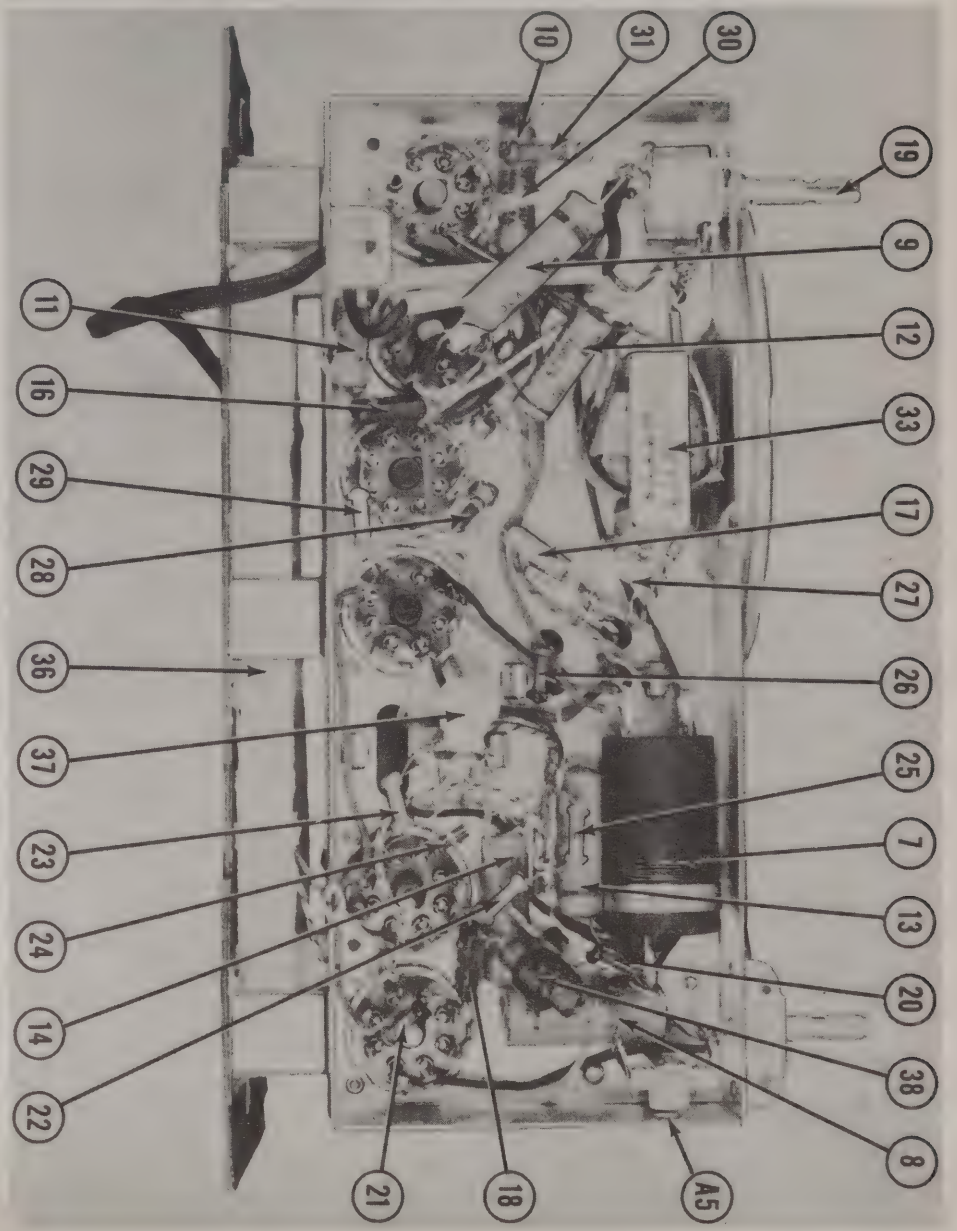
MISCELLANEOUS

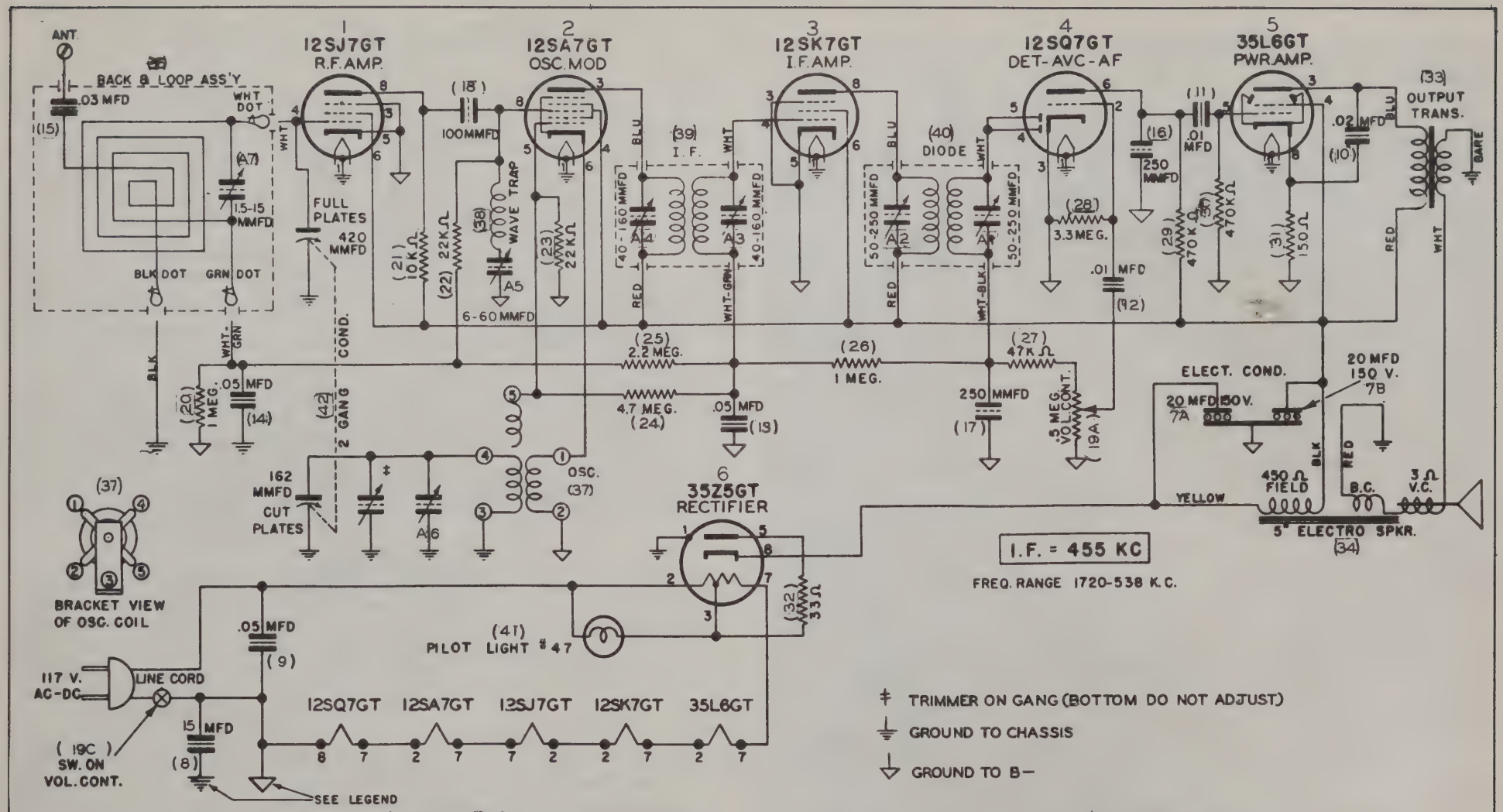
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
42	Tuning Cap.		2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7GT	0V.	38V.AC	0V.	-.275V.DC	0V.	88V. DC	27V.AC	47V.DC
2	12SA7GT	0V.	12V. AC	88V.DC	88V. DC	- 4 V. DC	0V.	27V. AC	-.225V.DC
3	12SK7GT	0V.	38V.AC	0V.	-.2V. DC	0V.	88V. DC	52V.AC	88V. DC
4	12SQ7GT	0V.	-.175V.DC	0V.	-.4V. DC	-.4V. DC	46V. DC	12V.AC	0V.
5	35L6GT	0V.	52V.AC	80V. DC	88V. DC	0V.	0V.	85V.AC	5.15V. DC
6	35Z5GT	0V.	117V.AC	H4V.AC	0V.	114V.AC	0V.	85V.AC	120 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7GT	INF	38 Ω	0 Ω	700KΩ	0 Ω	120KΩ	27 Ω	130KΩ
2	12SA7GT	INF	14 Ω	120KΩ	120KΩ	19KΩ	1 Ω	27 Ω	720 KΩ
3	12SK7GT	INF	38 Ω	0 Ω	800KΩ	0 Ω	120KΩ	52 Ω	120KΩ
4	12SQ7GT	INF	3.25MEG	0 Ω	380KΩ	380KΩ	675KΩ	14 Ω	0 Ω
5	35L6GT	INF	52 Ω	120KΩ	120KΩ	470KΩ	INF	85 Ω	140 Ω
6	35Z5GT	INF	115 Ω	110 Ω	INF	110 Ω	INF	85 Ω	120KΩ

Stage gain measurements are omitted at the request of the manufacturer.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.

2 - Socket connections are shown as bottom views.

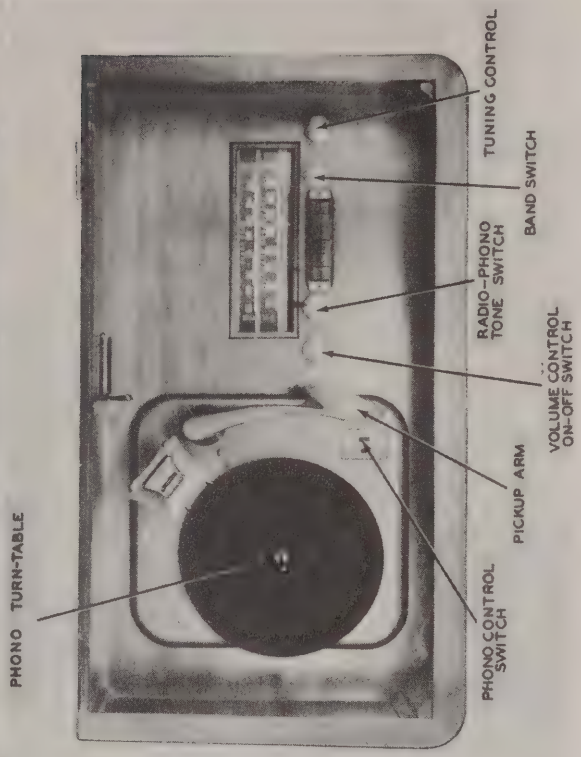
3 - Measured values are from socket pin to common negative.

4 - Line voltage maintained at 117 volts for voltage readings.

5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

6 - Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA
MODEL 65F21 (CHASSIS HS-26)



MOTOROLA
MODEL 65F21 (CHASSIS HS-26)

MOTOROLA MODEL 65F21 (Ch. HS-26)

TRADE NAME	Motorola Model 65F21 (Ch. HS-26)
MANUFACTURER	Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	AC Operated 2 Band Comb. Radio & Auto. Phono.-Superhet. Radio with Self Contained Loop Ant. and Auto. Tuning. Auto. Changer with Record Cap. of 10-10" or 8-12" types.
TUBES (SIX)	Types, 6SG7 Converter, 6J5 Oscillator, 6SG7 IF Amplifier, 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	117 Volts AC RATING .560 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC **SHORT WAVE** 5.6-12.2MC

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 of 6SG7. Low side to chassis.	455KC	BC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	"	1600KC	"	1600KC	"	A5	" " " "
	Loop	1400KC	"	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop.
400 res.	High side to ext. ant. lead. Low side to chassis.	12MC	SW	12MC	"	A7,A8	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SG7	6SG7	8BK	
2	Oscillator	6J5	6J5	6Q	
3	IF Amp.	6SG7	6SG7	8BK	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	350	23A27718	FP331	DY-2x30-350/	EL-323	AF32K4A	UP6BJ38	■ Filter
B	30	300			50-50				▲ "
C	20	25						BR202A	"
8	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	6K6 Plate Bypass
9	.05	400	8S-9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Coupling
10	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	Tone Compensation
11	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	" "
12	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
13	.05	400	8S-9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
14	.05	400	8S-9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
15	.05	400	8S-9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Osc. Plate Bypass
16	.05	400	8S-9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Cath. Coupling
17	.05	400	8S-9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
18	500	500		MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
19	500	500		MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	RF Bypass Vol. Cont.
20	100	500		MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Phono. Coupling
21	50	500		MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
22	1000	500		MC255	M0.3-21	1FM-21	1468-.001	1W5D1	Fixed Pad
23	50	500		MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	RF Coupling
24	535	500							Fixed Tuning

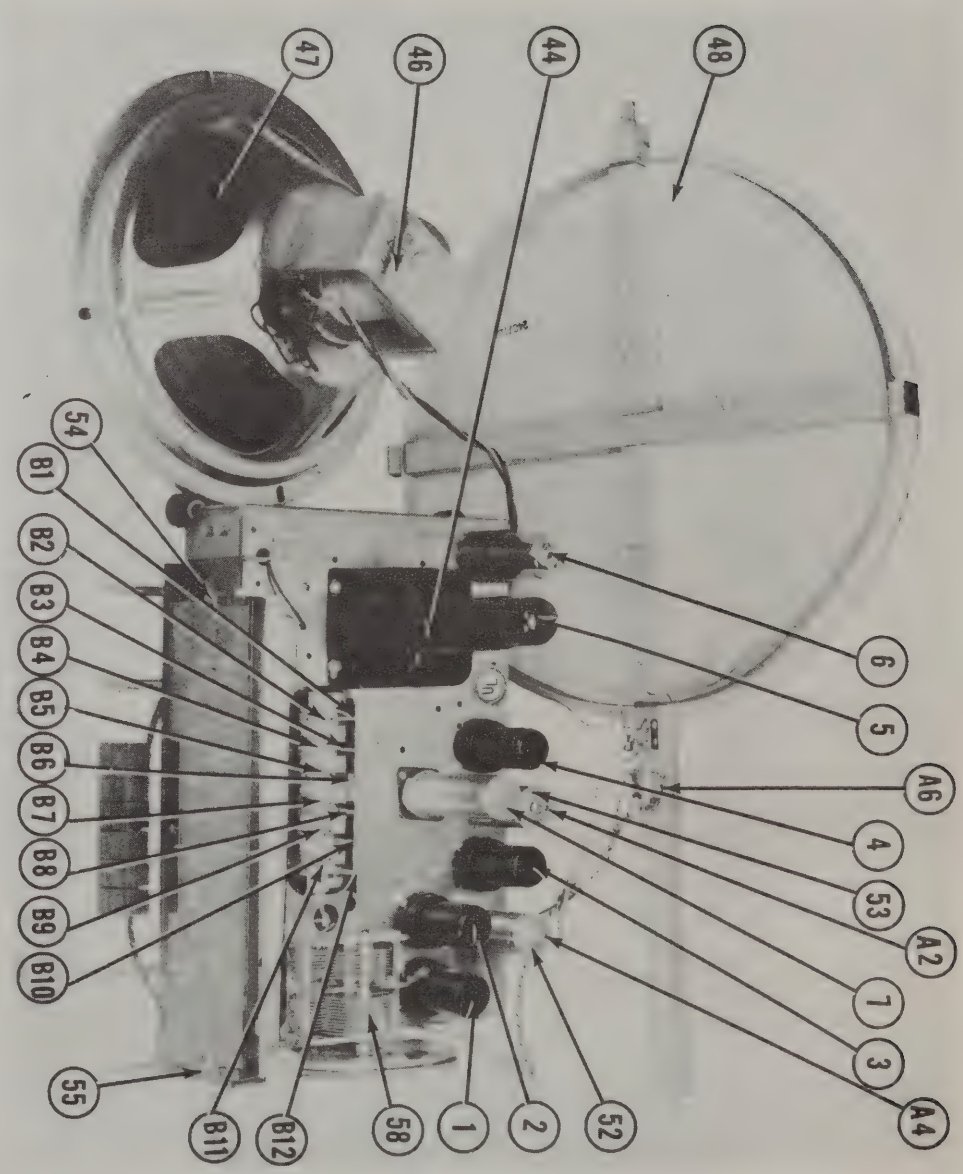
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	1 Meg.	1	18A70068-B	TM240	D13-137X	AT-98	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 25A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
26A	1 Meg.	1	18K70086-C				Tone Control
B	Shaft		Not Req.				Attach to 26A per instructions
C	Switch		" "				" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
27	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Ant. Loading
28	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Grid
29	470Ω	½		BTS-470	Yl.-Vi.-Br. Mixer Cathode
30	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
31	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
32	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
33	22KΩ	½		BTS-22K	Red-Red-Or. IF Screen Dropping
34	1000Ω	½		BTS-1000	Br.-Blk.-Red Osc. Plate Load
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Phono Load
36	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
37	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. 1st AF Grid
38	22Ω	½		BW-½-22	Red-Red-Blk. 1st AF Cathode
39	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
40	39Ω	½		BW-½-39	Or.-White-Blk. Voltage Divider Bias
41	270Ω	1		BW-1-270	Red-Vi.-Br. Voltage Divider Bias
42	33Ω	½		BW-½-33	Or.-Or.-Blk. Tone Compensation
43	150KΩ	½		BTS-150K	Br.-Grn.-Br. Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	THORDASON PART No.	
44	117V @ .56A	550VCT @ .06A	5V @ 1.9A	6.3V @ 2.1A	25B21248	P6119	T-13R11	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
45	7000Ω	3Ω	460Ω	.5Ω	25B21175	A-3850	T-13S37		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
46	1275	3Ω	50B71799	ST-441†		†Change the output transformer to match 6Ω voice coil.
	CONE DIA.	VC DIA.				
47	9-13/16"	1"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
48	Loop Ant.	0Ω	1.4Ω	24C71224		
49	SW Ant. Coil	3Ω	0Ω		14-1044	
50	BC Osc. Coil		7Ω		14-1040	Fabricate mtg. bracket
51	SW Osc. Coil		0Ω		14-1046	
52	Input IF	14Ω	14Ω		16-6658	Drill new mtg. holes
53	Output IF	15Ω	15Ω		16-6660	" " " "

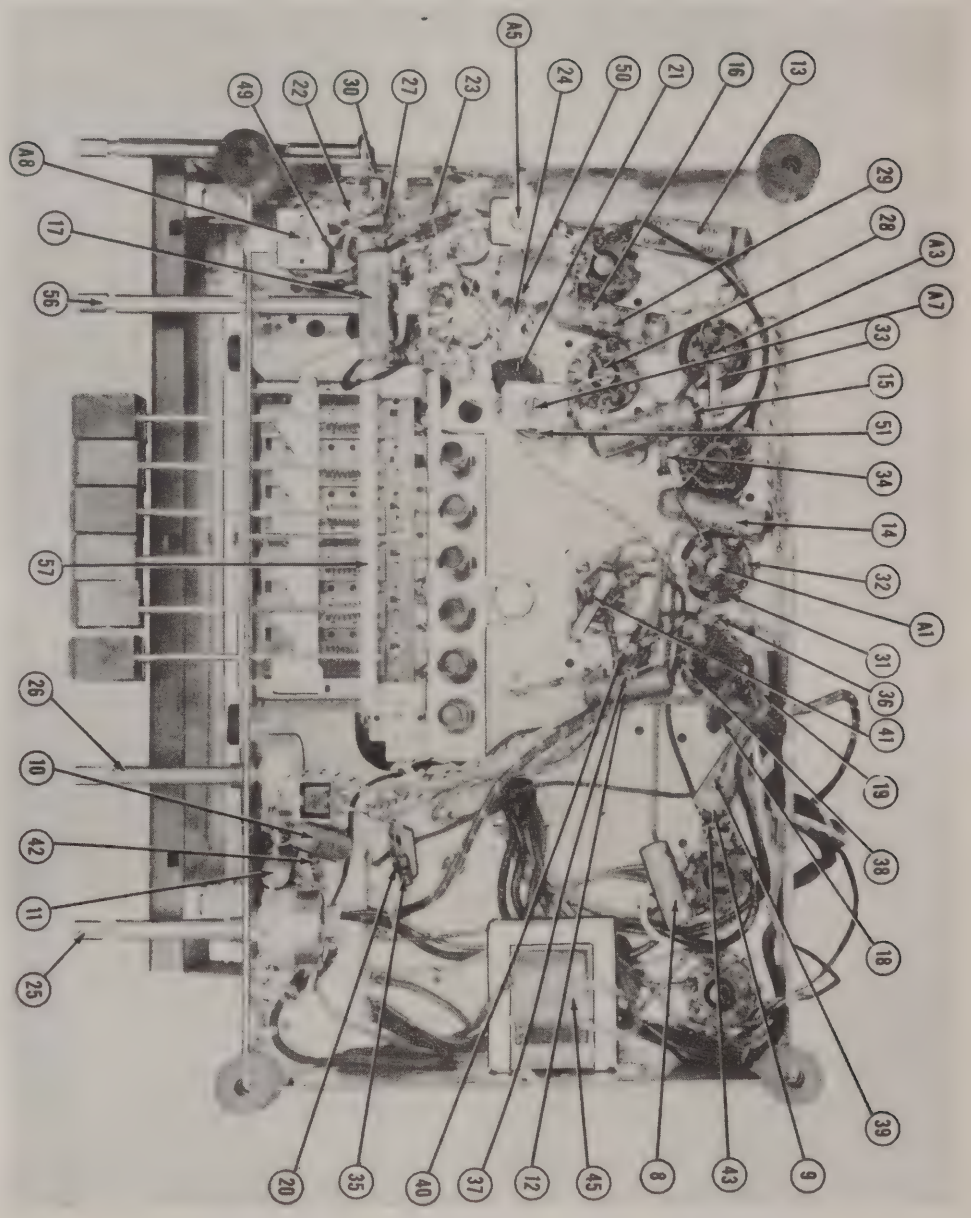
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
54	Bayonet	6-8	0.2	White			Type 51
55	"	6-8	0.2	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
56	Band Switch		
57	Push Button		Assembly
58	Tuning Cap.		2 Gang Variable Cap.

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

1 - Remove the following knobs: volume control, radio-phone tone switch, band switch, and tuning control.

2 - Remove screw from speaker plug.

3 - Remove speaker plug from speaker connection.

4 - Remove phono motor plug.

5 - Remove phono pickup plug.

6 - Remove antenna loop plug.

7 - Remove antenna white wire from antenna loop.

8 - Remove the two bolts and two clamps holding the chassis.

9 - Remove chassis.

10- Remove the four screws holding the speaker to chassis.

11- Remove the antenna loop from the two brackets.

PUSHBUTTON ADJUSTMENTS

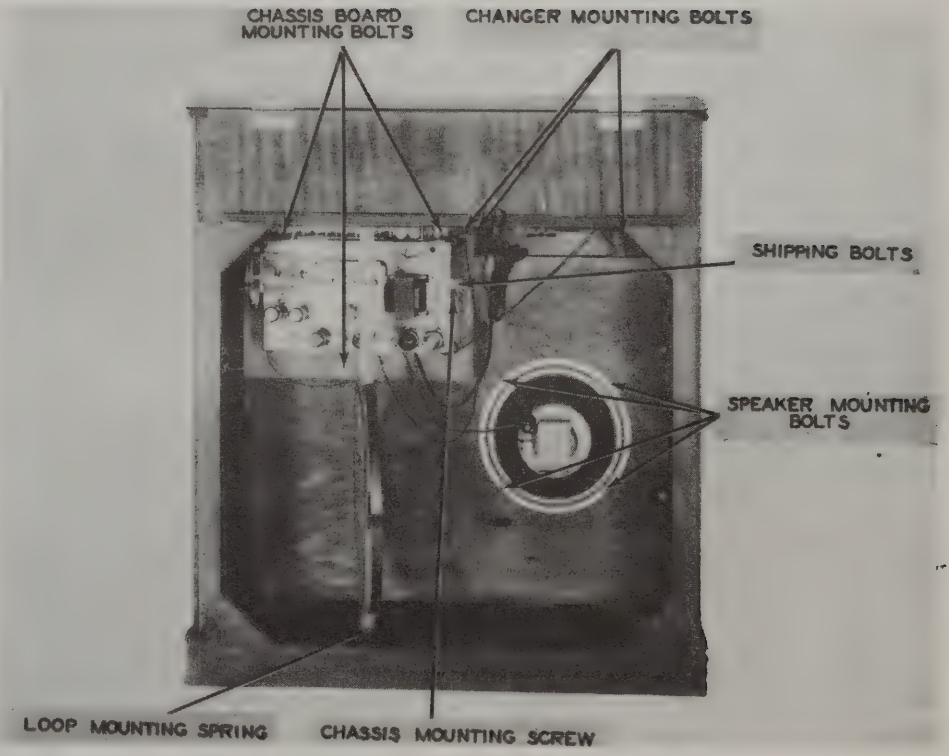
The pushbuttons and associated adjustments from left to right (facing front of receiver) cover the frequency ranges as follows: 540 to 935KC, 600 to 1050KC, 650 to 1200KC, 650 to 1200KC, 750 to 1350KC, and 900 to 1600KC. To adjust proceed as follows:

1-With pushbutton, broadcast, shortwave switch in broadcast position, turn radio on and allow time for warm-up.

2-Tune in a desired station within the tuning range of the pushbutton to the left, and adjustments B1 and B2 (540 to 935KC).

3-Turn switch to pushoutton position and press in pushbutton on the left. Adjust B1 to tune in station selected above. Adjust B2 for maximum volume of station tuned in.

4-Follow the same procedure for the remaining pushbuttons. Always select station within tuning range of pushbutton. Adjust B3, B5, B7, B9, and B11 to tune in station and B4, B6, B8, B10, and B12 for maximum volume.



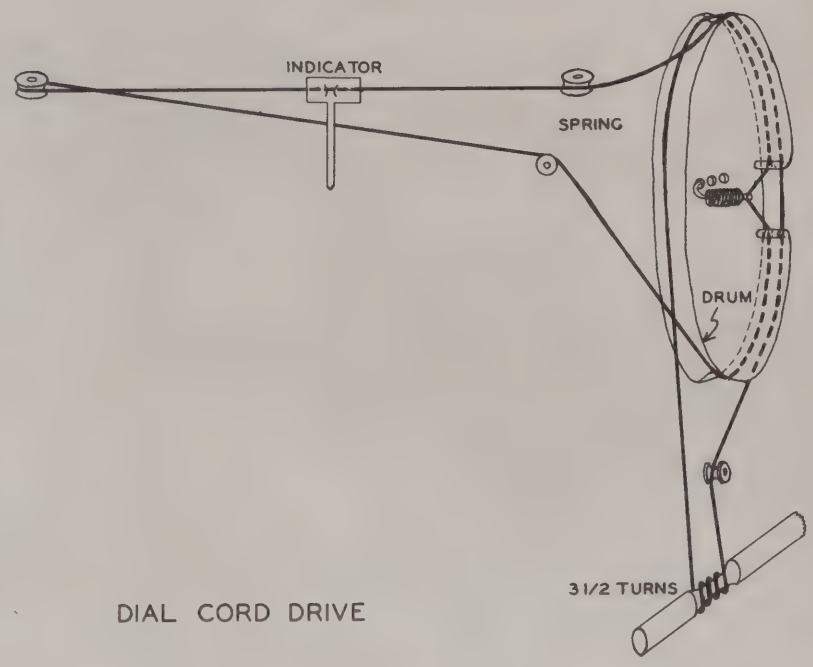
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	2.8V.DC	-.13V.DC	2.8V.DC	120V.DC	6.3V.AC	200V.DC
2	6J5	0V.	0V.	205V.DC	0V.	-.1V.DC	0V.	6.3V.AC	0V.
3	6SG7	0V.	0V.	0V.	-.5V.DC	0V.	120V.DC	6.3V.AC	225V.DC
4	6SQ7	0V.	-1.38V.DC	-1.22V.DC	-1.47VDC	-1.47V.DC	172V.DC	6.3V.AC	0V.
5	6K6GT	0V.	0V.	215V.DC	225V.DC	-15V.DC	-17V.DC	6.3V.AC	0V.
6	5Y3GT	0V.	285V.DC	0V.	280VAC	0V.	280VAC	0V.	285V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	440Ω	2.5MEG	440Ω	320KΩ	0Ω	320KΩ
2	6J5	0Ω	0Ω	300KΩ	INF	40KΩ	INF	0Ω	1Ω
3	6SG7	0Ω	0Ω	0Ω	2.6MEG	0Ω	320KΩ	0Ω	300KΩ
4	6SQ7	0Ω	3.4MEG	22Ω	440KΩ	440KΩ	520KΩ	0Ω	0Ω
5	6K6GT	0Ω	0Ω	300KΩ	300KΩ	150KΩ	310Ω	0Ω	0Ω
6	5Y3GT	INF	300KΩ	INF	500Ω	INF	500Ω	INF	300KΩ

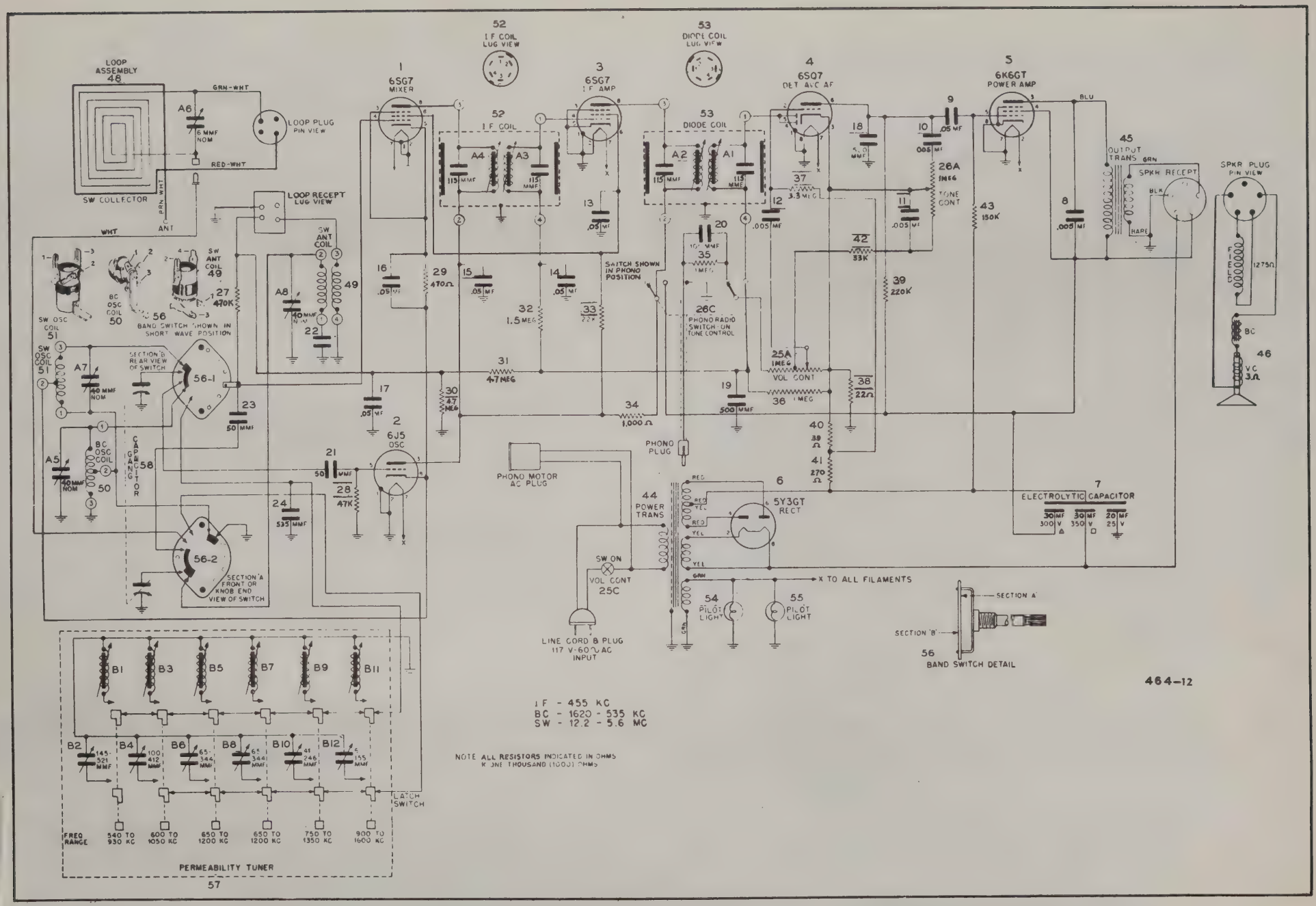
1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

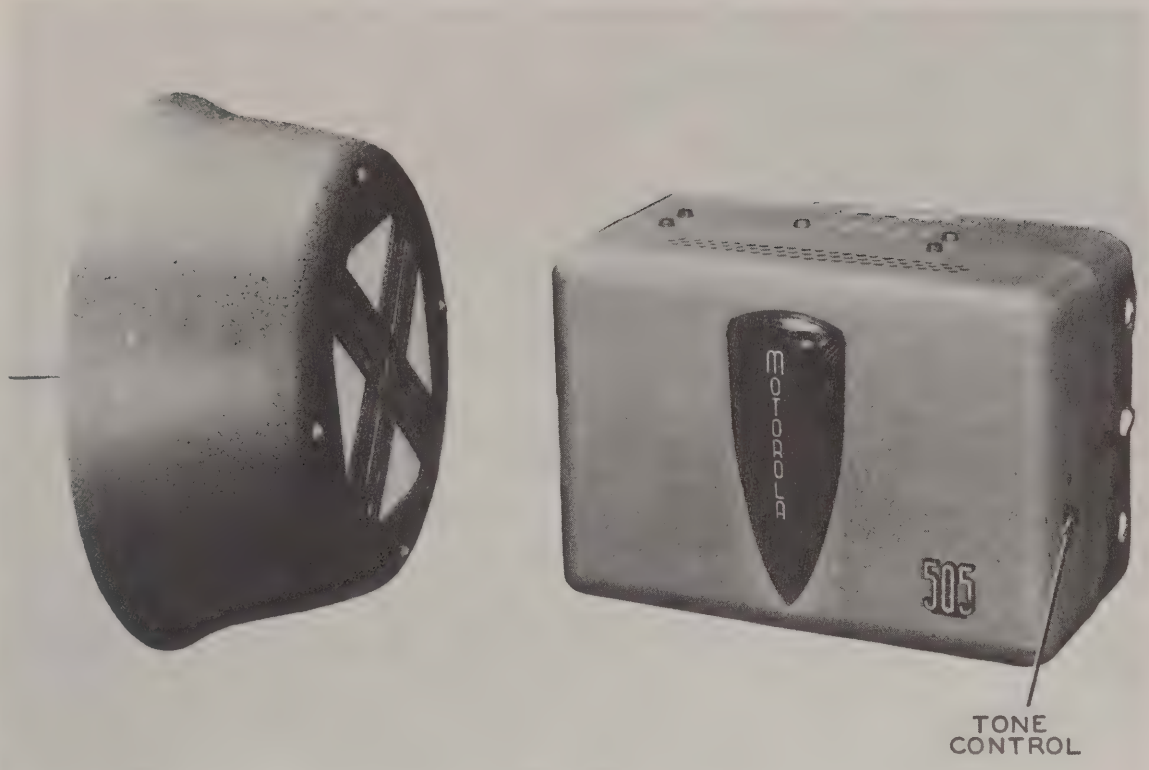
MOTOROLA - MODEL 65F21 (Chassis HS-26)

Page 4 - On the schematic diagram, the 33K Tone Compensation Resistor shown as Item 46 should be Item 36.


LOOP ASSEMBLY 48
SW COLLECTOR
LOOP PLUG PIN VIEW
LOOP RECEPT LUG VIEW
SW ANT COIL 49
SW OSC COIL 51
BC OSC COIL 50
BAND SWITCH SHOWN IN SHORT WAVE POSITION
SECTION 'B' REAR VIEW OF SWITCH
SECTION 'A' FRONT OR KNOB END VIEW OF SWITCH
GANG CAPACITOR 58
52 I.F. COIL LUG VIEW
53 DIODE COIL LUG VIEW
1 6SG7 MIXER
2 6J5 OSC
3 6SG7 I.F. AMP
4 6SQ7 DET AVC AF
5 6K6GT POWER AMP
6 5Y3GT RECT
7 ELECTROLYTIC CAPACITOR
30 MF 300 V
30 MF 350 V
20 MF 25 V
44 POWER TRANS
45 OUTPUT TRANS GRN
SPKR RECEPT
SPKR PLUG PIN VIEW
SWITCH SHOWN IN PHONO POSITION
26A 1MEG TONE CONT
26C PHONO RADIO SWITCH-ON TONE CONTROL
25A 1MEG VOL CONT
25C VOL CONT
PHONO PLUG
PHONO MOTOR AC PLUG
SW ON
LINE CORD & PLUG 117 V-60~ AC INPUT
54 PILOT LIGHT
55 PILOT LIGHT
X TO ALL FILAMENTS
56 BAND SWITCH DETAIL
SECTION 'A'
SECTION 'B'
B1 B3 B5 B7 B9 B11
B2 B4 B6 B8 B10 B12
LATCH SWITCH
FREQ RANGE
540 TO 930 KC
600 TO 1050 KC
650 TO 1200 KC
650 TO 1200 KC
750 TO 1350 KC
900 TO 1600 KC
PERMEABILITY TUNER
57
I.F. - 455 KC
B.C. - 1620 - 535 KC
S.W. - 12.2 - 5.6 MC
NOTE ALL RESISTORS INDICATED IN OHMS K ONE THOUSAND (1000) OHMS
464-12

· Reference stage gain measurements are not included at the request of the manufacturer.

MOTOROLA
MODEL 505



MOTOROLA
MODEL 505

MOTOROLA MODEL 505

TRADE NAME	Motorola Model 505
MANUFACTURER	Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Auto Receiver
TUBES (SIX)	Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	6.3 Volts DC RATING - 8.5 Amps. @ 6.3 V DC
TUNING RANGE—BROADCAST	535-1600KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (grid) 6SA7. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
60 MMFD and 21" coaxial lead. Capacitor at gen. end.	Antenna receptacle	1600KC	High freq. end cores are to be projecting 1-1/8" from ends of cans and tuning shaft against stop.	"	A5,A6, A7.	" " " "
"	"	1425KC	Exactly one full turn from high freq. end	"	Osc.Core RF " Ant. "	Adjust for maximum output. Mark manual tuning shaft coupling to indicate full turn.
"	"	Gen. power off but leave connected.	Four more full turns in.	"	A8	Adjust for maximum noise.
			1400KC	"	A7	Install set in car, and connect antenna. Adjust for maximum noise.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7GT	6SA7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	0Z4 Type, RMA Base Type 4R, can be used.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	300	23A27718	FP331	DY-2x30-350/50-50	EL-323	AF44J	UP6BJ38	▲ Filter
B	30	350					PRS50-25		■ "
C	20	25						BR202A	"
8	.006	1600		0W344	XTIMS10-.006	TR-26	1089-.006	MD16D6	Buffer
9	.5	100	8A19133-B	TP431	S-4-5	TC-5	484-.5	DT4P5	Hash Filter
10	.5	100	8A19133-B	TP431	S-4-5	TC-5	484-.5	DT4P5	" "
11	.006	400	8A12840-A	TP409	S-6-006	TC-26	484-.006	DT6D6	6V6 Plate Bypass
12	.004	400		TP407	S-6-004	TC-24	484-.004	DT6D4	Tone Compensation
13	.03	400	8A71911	TP424	S-4-03	TC-13	484-.03	DT4S3	Audio Coupling
14	.01	400	8K23690E	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
15	.01	400	8K23690E	TP421	S-4-01	TC-11	484-.01	DT4S1	Tone Compensation
16	.1	400	8K13166	TP428	S-4-1	TC-1	484-.1	DT4P1	Plate Bypass
17	.05	400	8A14791-A	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
18	.05	400	8A14791-A	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
19	.006	400	8A71910	TP409	S-6-004	TC-26	484-.006	DT6D6	Ant. Coupling
20	250	500		MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
21	50	500		MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	AVC Coupling
22A	120								Diode Filter
B	120								" "
23	400								Fixed Trimmer
24	50	500		MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cap.
25	90	500							Ant. Filter
26	5								RF Coupling

CONTROLS

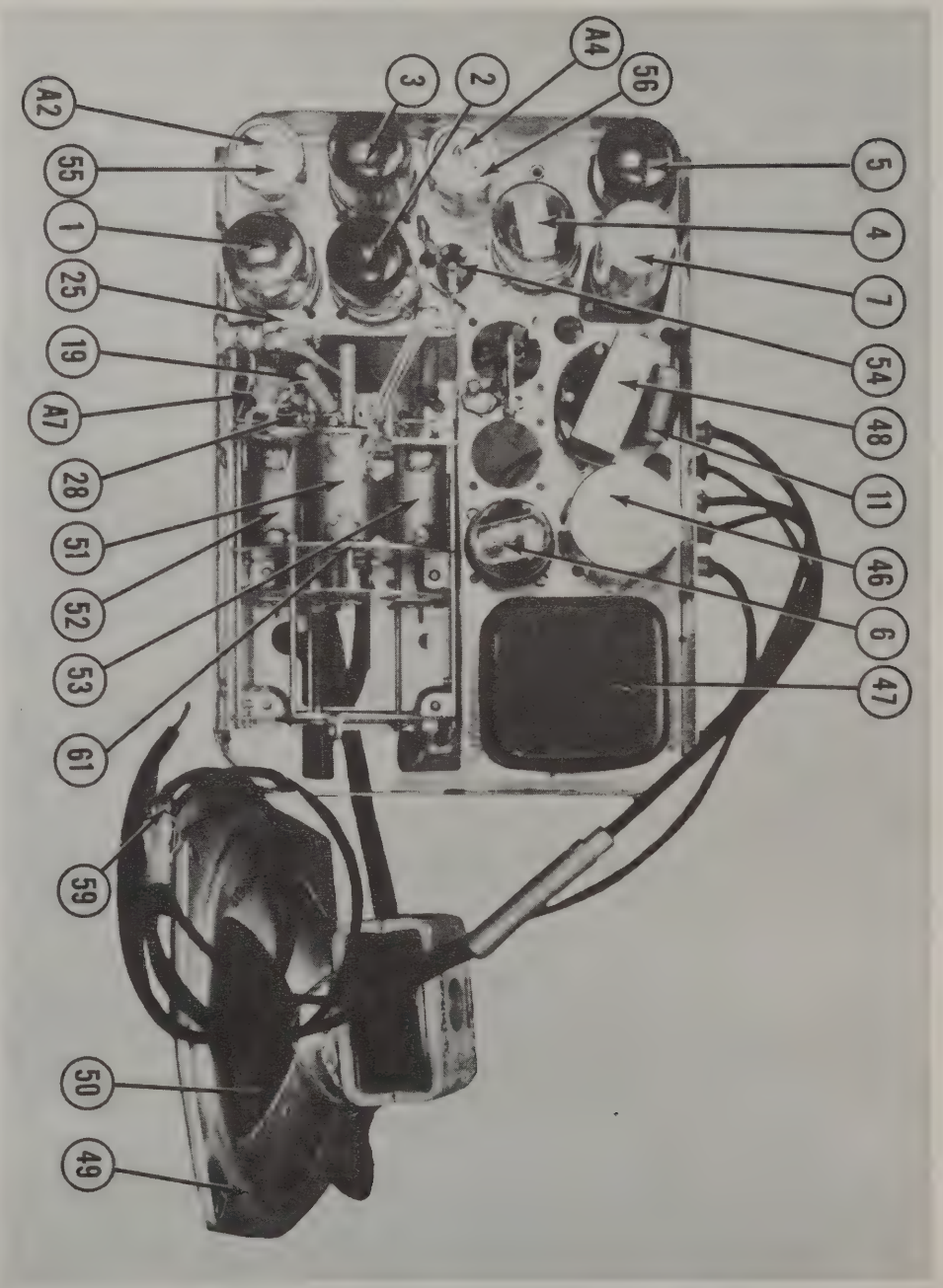
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
27A	500KΩ	1	18A71925-0	TM233	D18-133X		Volume Control
B	Shaft		Not Req.	SS19	A & C3*		Attach to 27A per instructions
C	Switch		" "	M26	41		" " " " "

*Use IRC "A" shaft and "C3" coupler with part of original shaft and square hole insulated coupler.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
28	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
29	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid & AVC
30	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Grid
31	22KΩ	1		BTA-22K	Red-Red-Or. Screen Dropping
32	22KΩ	1		BTA-22K	Red-Red-Or. " "
33	330Ω	1		BTA-330	Or.-Or.-Br. Plate Filter
34	22KΩ	½		BTS-22K	Red-Red-Or. Tone Compensation
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode Load
37	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
38	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
39	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid
40	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
41	180Ω	1		BW-1-180	Br.-Gray-Br. Voltage Divider
42	47Ω	½		BW-½-47	Yl.-Vi.-Blk. " "
43	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
44	50Ω	1		BW-1-47	Grn.-Blk.-Blk. Hash Suppression
45	50Ω	1		BW-1-47	Grn.-Blk.-Blk. " "

CHASSIS—TOP VIEW



CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

MOTOROLA - MODEL 505

Page 3 - Item 48 STANCOR Part Listing should be A-3877.

PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	RADIART PART No.	INSTALLATION NOTES
46	Interrupter	6.3	115~	3333	859	5342M	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: MOTOROLA PART No.	STANCOR PART No.	THORDASON PART No.	INSTALLATION NOTES
47	5.3VDC @ 2.1A each section	600VCT @ .060A			25B70950B	P-4062	T-14R351	†Drill 4 new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.	UTAH PART No.	INSTALLATION NOTES
48	6450Ω	4Ω	370Ω	.6Ω	25B70171-E	A-3879	T-13S37		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MOTOROLA PART No.	JENSEN PART No.	UTAH PART No.	INSTALLATION NOTES
	FIELD RES.	VC IMP.				
49	4.25Ω	4Ω	50B74041-0	ST-432		
	CONE DIA.	VC DIA.				
50	6-1/16"	11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	MEISSNER PART No.	INSTALLATION NOTES
51	Ant. Coil		12.8Ω			Items 51, 52, 53, ganged slug tuned
52	RF "		12.2Ω			
53	Osc. "		1.8Ω			
54	" Pad Coil	2Ω				
55	Input IF	16Ω	14.9Ω		16-6666	
56	Output "	15.5Ω	16.2Ω		16-6667	
57	Vib.RF Choke	0Ω				
58	Bat " "	0Ω				

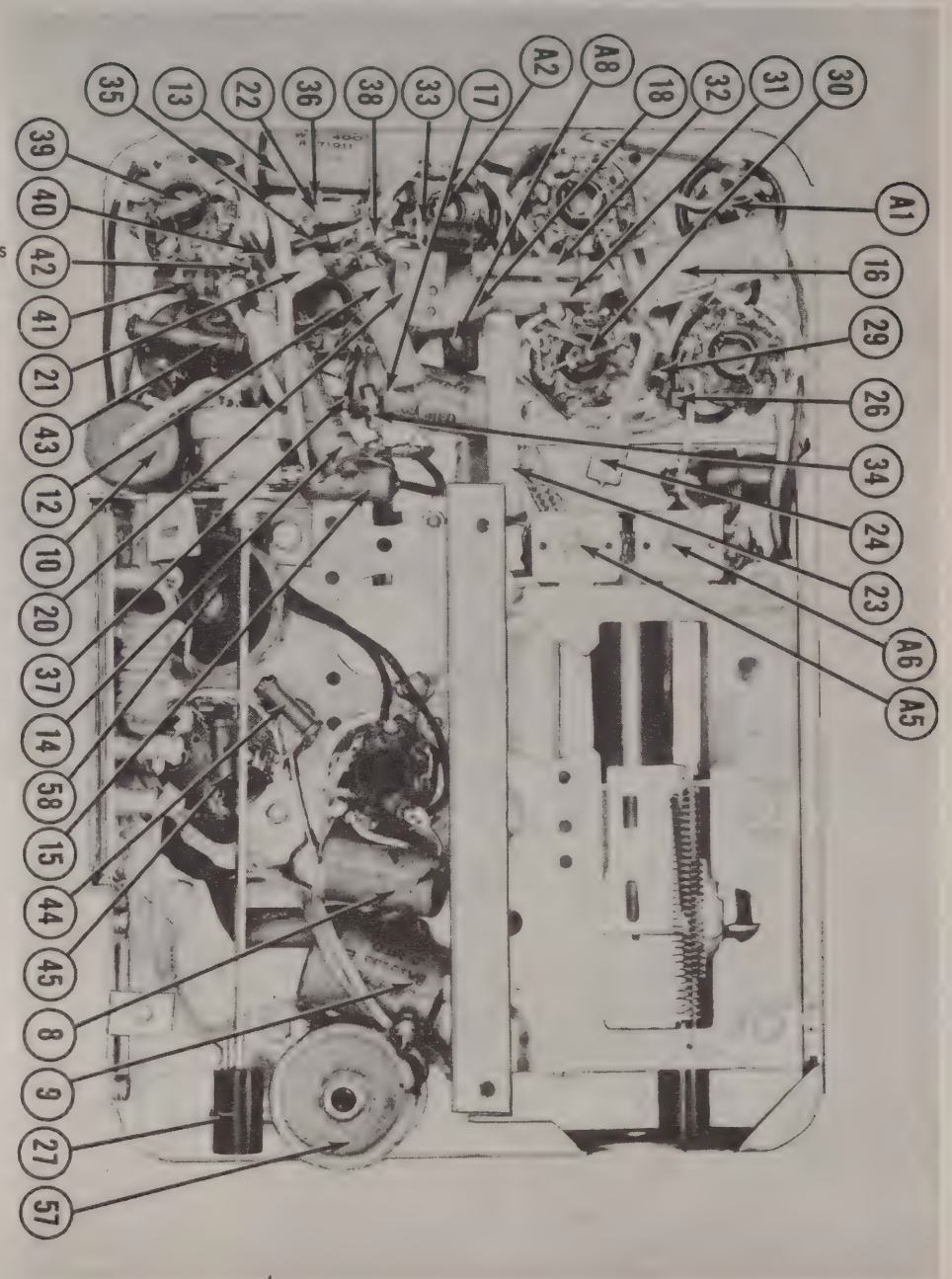
DIAL LIGHT

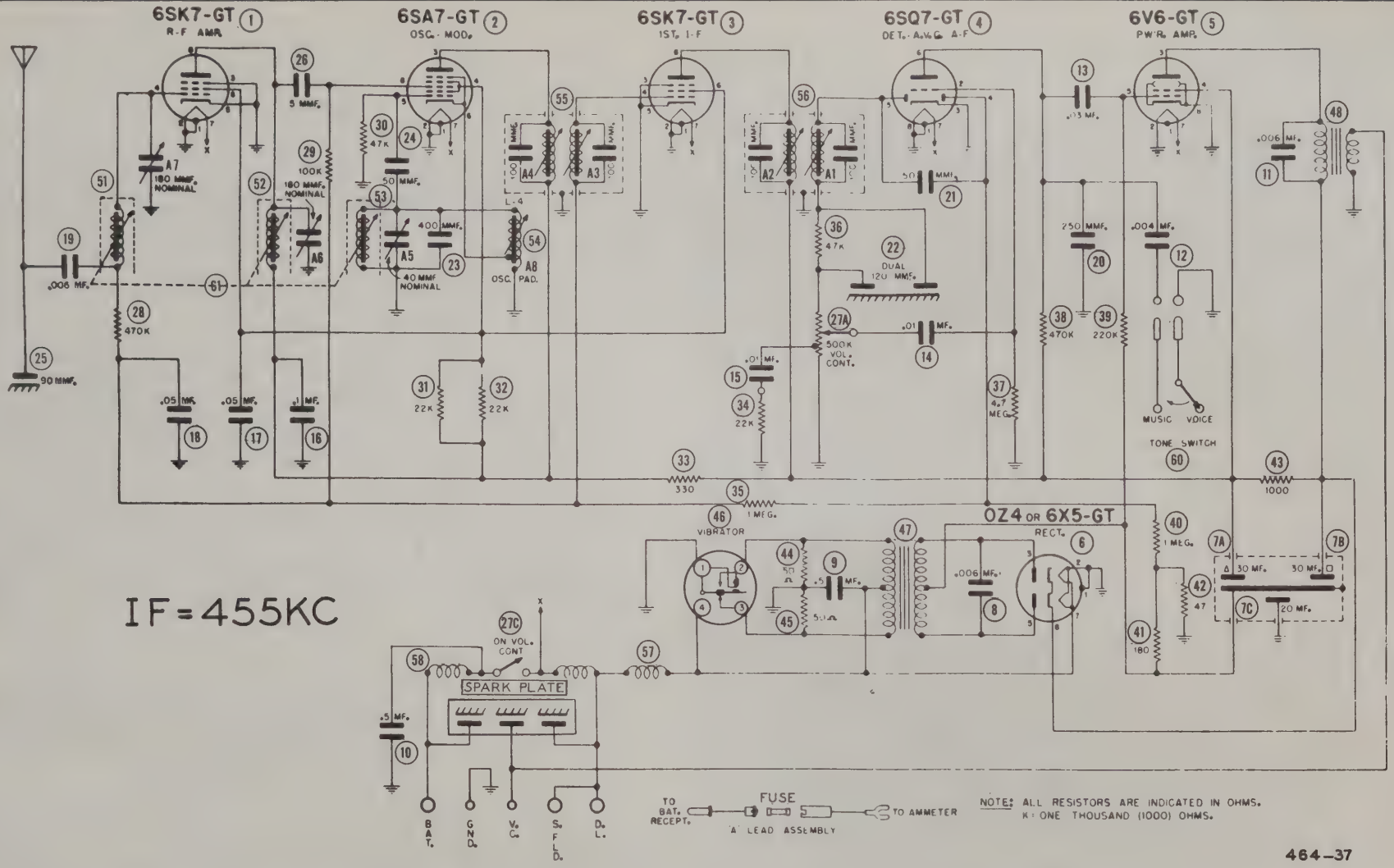
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MOTOROLA PART No.		INSTALLATION NOTES
59	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
60	Tone Switch		DPST
61	Tuning Assby.		

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	0V.	-.25V.DC	0V.	90V.DC	6V.DC	220V.DC
2	6SA7GT	0V.	0V.	220V.DC	90V.DC	-.1V.DC	0V.	6V.DC	-.4V.DC
3	6SK7GT	0V.	0V.	0V.	-.5V.DC	0V.	90V.DC	6V.DC	225V.DC
4	6SQ7GT	0V.	-.55V.DC	0V.	-.45V.DC	-.4V.DC	82V.DC	6V.DC	0V.
5	6V6GT	-14V.DC	0V.	240V.DC	225V.DC	-12V.DC	2.9V.DC	6V.DC	0V.
6	6X5GT	0V.	0V.	-25V.DC 315V.AC	-14V.DC	-25V.DC 315V.AC	0V.	6V.DC	250V.DC

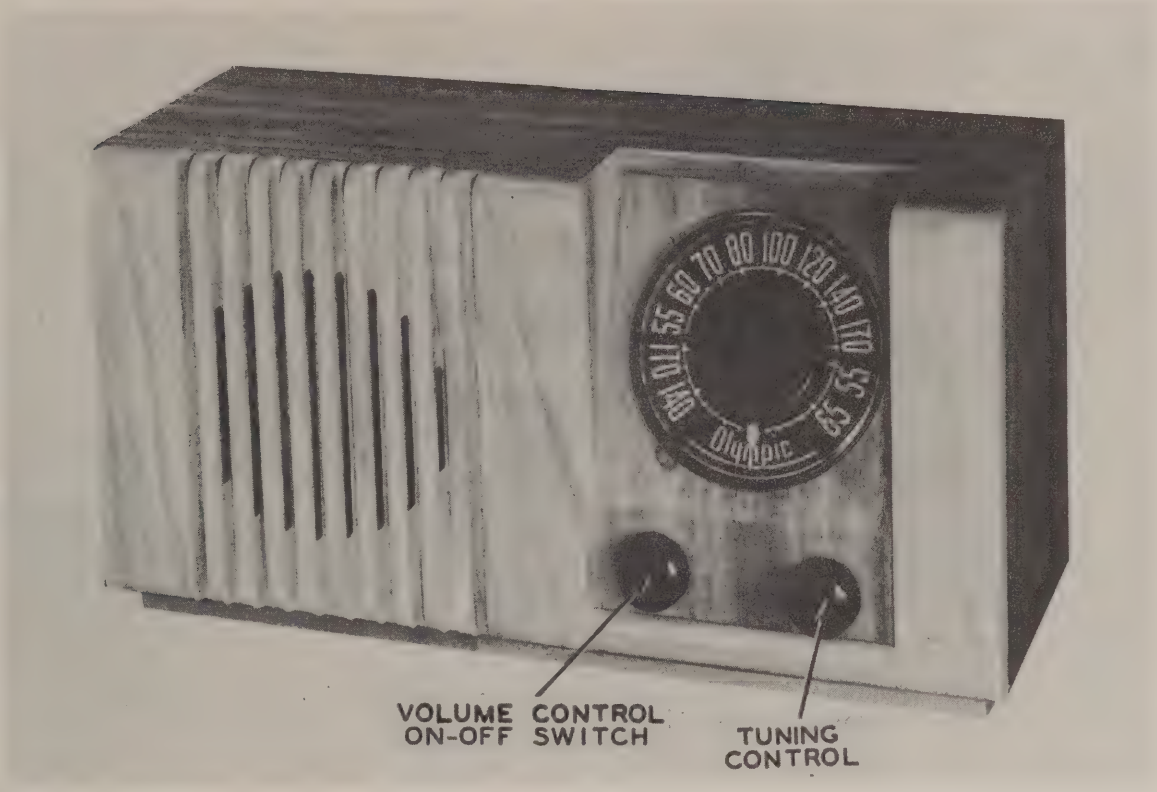
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	0Ω	2.5MEG	0Ω	250 KΩ	.25Ω	250KΩ
2	6SA7GT	0Ω	0Ω	250 KΩ	250KΩ	52KΩ	.5Ω	.25Ω	2.2MEG
3	6SK7GT	0Ω	0Ω	0Ω	2.2MEG	0Ω	250KΩ	.25Ω	250KΩ
4	6SQ7GT	0Ω	4 MEG	0Ω	1.15MEG	650KΩ	720KΩ	.25Ω	0Ω
5	6V6GT	220Ω	0Ω	250KΩ	250KΩ	205KΩ	46Ω	.25Ω	0Ω
6	6X5GT	0Ω	0Ω	550Ω	220Ω	530Ω	I N F	.25Ω	250KΩ

At the request of the manufacturer reference stage gain measurements are not included.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts DC for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

OLYMPIC
MODELS 6-501, 6-502,
6-502P, 6-503



OLYMPIC
MODELS 6-501, 6-502,
6-502P, 6-503

OLYMPIC MODEL 6-502P

TRADE NAME	Olympic Models 6-501, 6-502, 6-502P, 6-503
MANUFACTURER	Olympic Radio & Television Div. of Hamilton Radio Corp. 510 Avenue of the Americas, New York, N.Y.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES	(FIVE) Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING - .265 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1700KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Set dial pointer on horizontal positioning lines with gang fully closed. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, connect .1 MFD capacitor in series with low side to chassis and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
50 MMFD	High side to ant. terminal on loop. Low side to chassis.	1700KC	1700KC	"	A5	Adjust for maximum output. Use isolation transformer or connect .1 MFD in series with low lead to chassis.
"	"	1400KC	Tune in 1400 KC signal.	"	A6	"
						Repeat adjustments A5 and A6.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	CO-107	2N511	M-2x40-150	TA-440	PRS150-40-40	BRD4415	Filter - Blue
B	40	150							" - Red
7	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
8	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	50L6 Plate Bypass
9	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
10	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	" "
11	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-.02	DT4S2	AVC Filter
12	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	Ant. Coupling
13	330	500	RCM20A331M	MC241	MO.5-33	1FM-335	1468-.0003	5W5T3	Audio Plate Bypass
14	220	500	RCM20A221M	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	Audio Grid Bypass
15	100	500	RCM20A101M	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Diode
16	330	500	RCM20A331M	MC241	MO.5-33	1FM-335	1468-.0003	5W5T3	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	PT-102	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

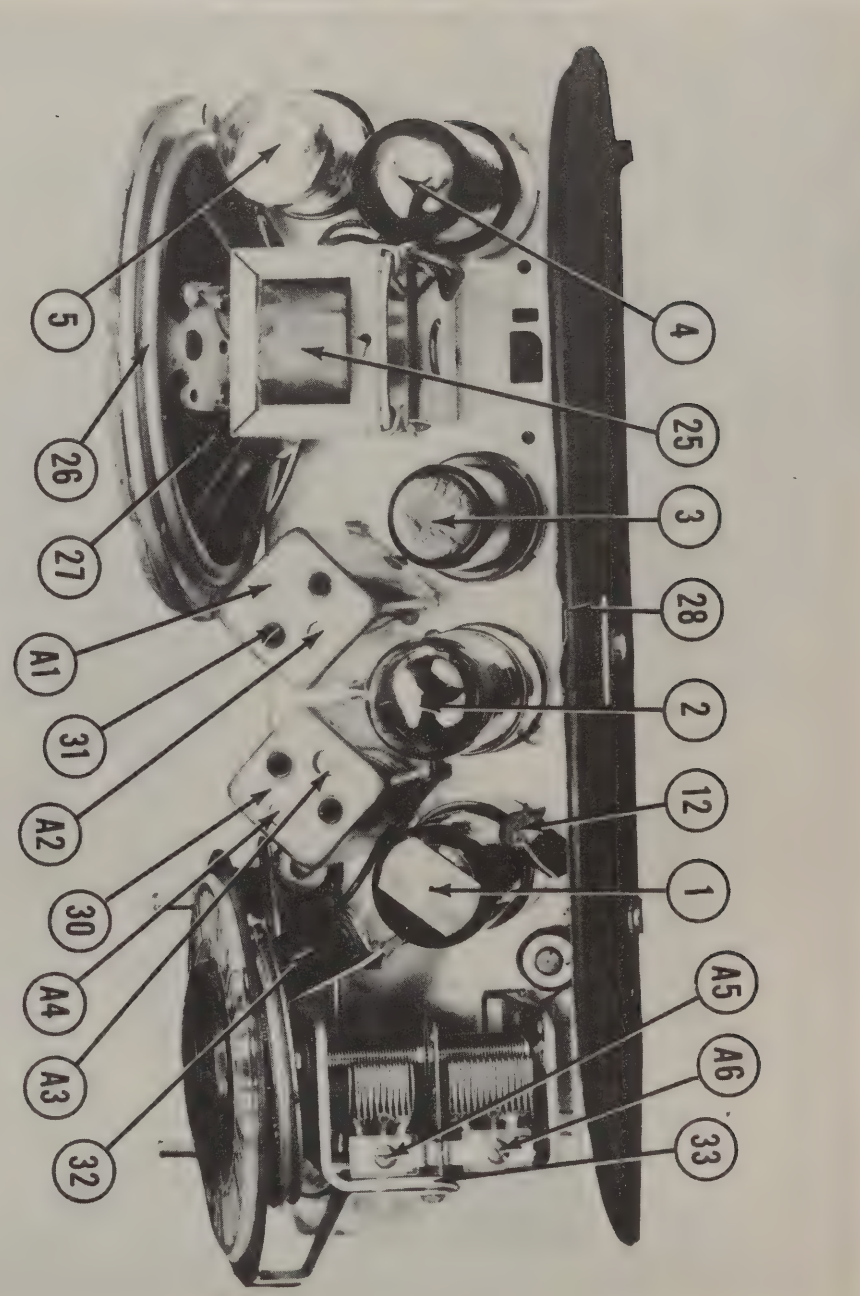
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	IRC PART No.	IDENTIFICATION CODES
18	8200Ω	½	REB822K	BTS-8200	Gray-Red-Red Osc. Grid
19	2.2 Meg.	½	REB225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	10 Meg.	½	REB106M	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
21	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
22	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. Output Grid
23	120Ω	½	REB121K	BW-½-120	Br.-Red-Br. Output Cathode
24	220Ω	1	REC221K	BW-1-220	Red-Red-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
25	2250Ω	3.5Ω	140Ω	.6Ω	Part of SK-110	A-3876†	T-14S82†		†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA OLYMPIC PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.				
26	450Ω	3.5Ω	SK-110	ST-450		
	CONE DIA.	VC DIA.				
27	4-13/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

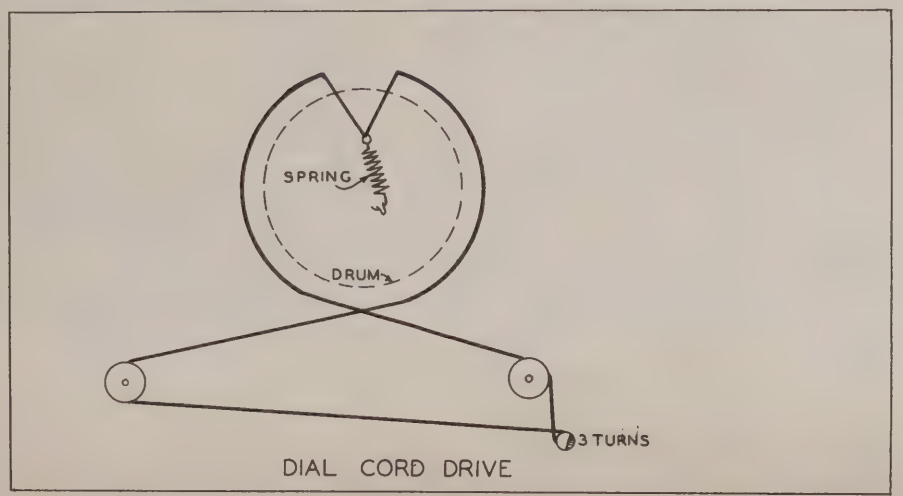
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA OLYMPIC PART No.	MEISSNER PART No.	INSTALLATION NOTES
28	Loop Ant.	0Ω	1.5Ω	LP163		
29	Osc. Coil		7Ω	CL159	14-1040	
30	Input IF	11.5Ω	11.5Ω	TR186	16-6666	
31	Output IF	11.5Ω	14Ω	TR186	16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA OLYMPIC PART No.		INSTALLATION NOTES
32	Bayonet	6-8	0.15	Brown	BU-187		Type 47

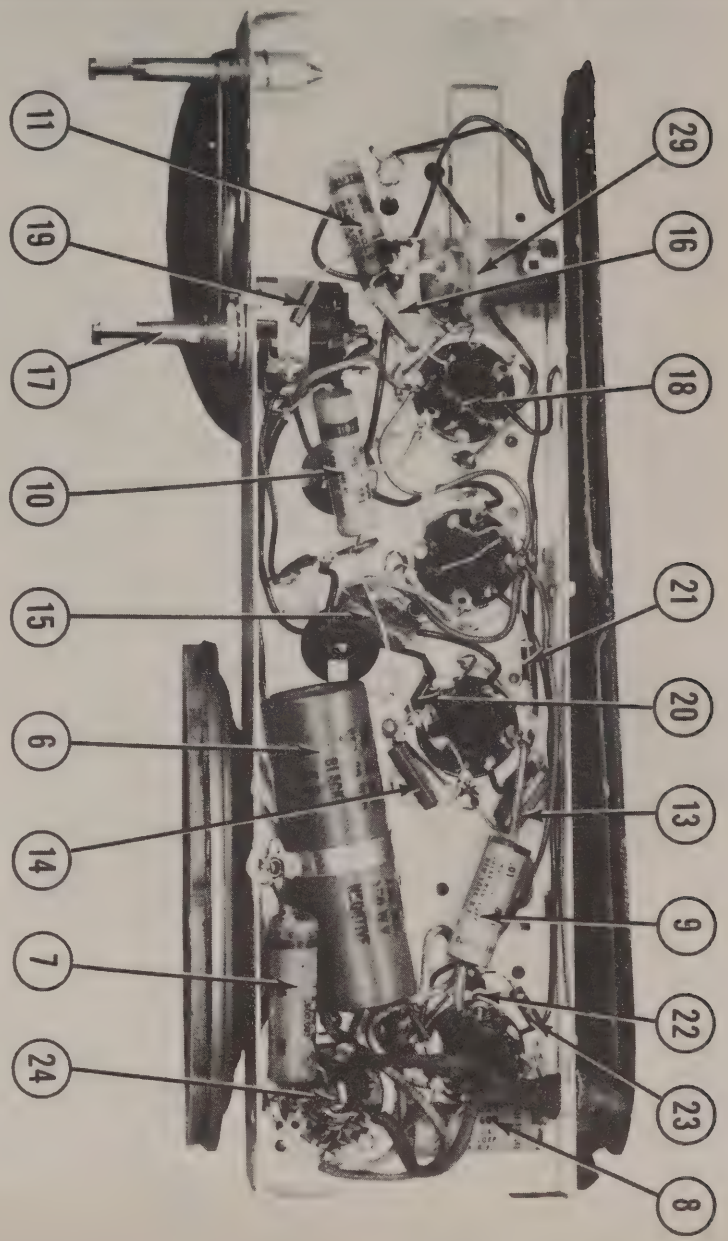
MISCELLANEOUS

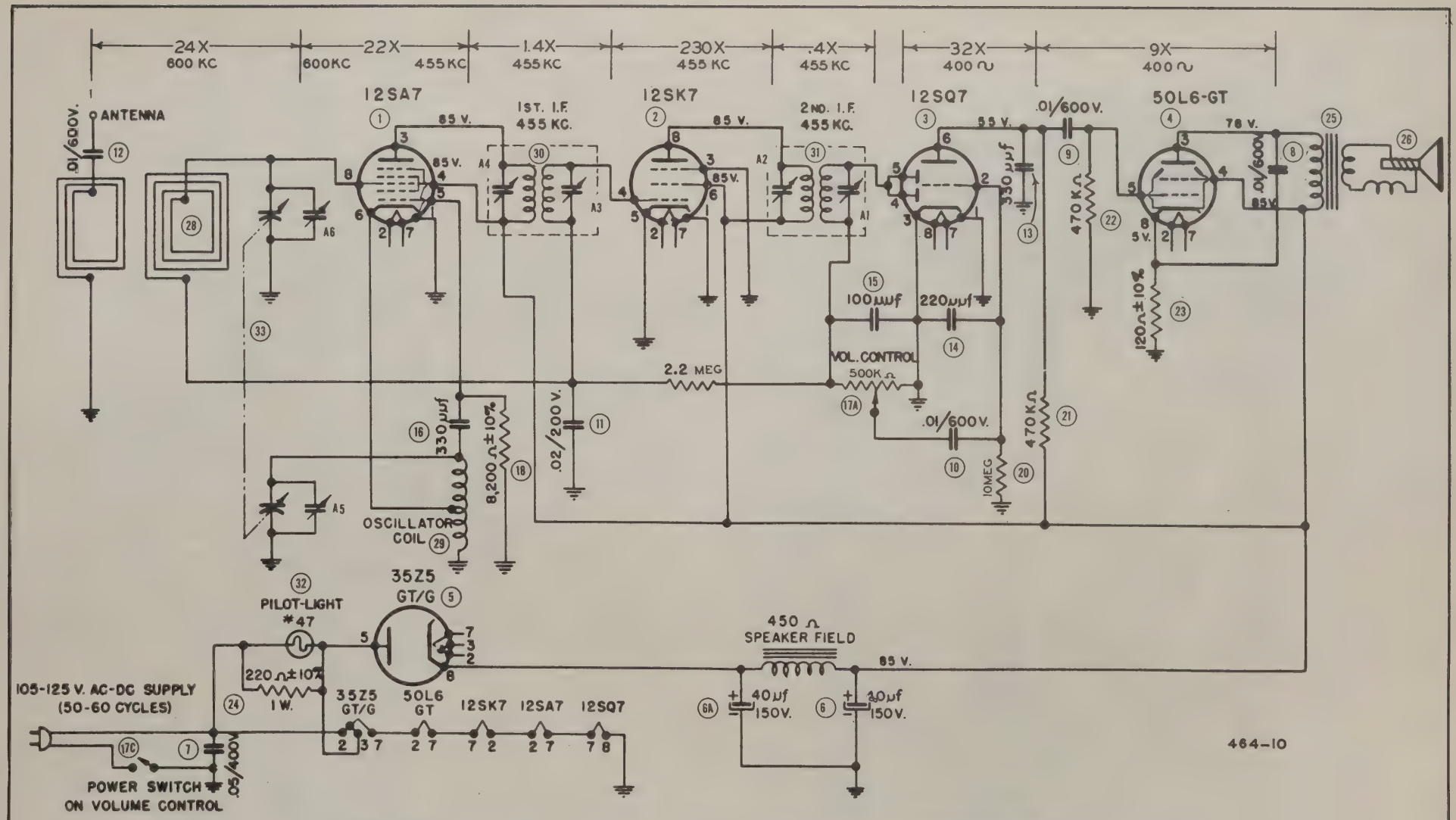
ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
33	Tuning Cap.	CV-501	2 Gang Variable Cap.
	Cabinet	CA-167W	Walnut-Bakelite
	"	CA-167V	Ivory - "
	Knob	KN-352	Walnut
	"	KN-353	Ivory
	Dial Crystal	CR-169	
	Pointer	PO-259	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	25.5V.AC	82V.DC	82V.DC	-5V. DC	0V.	12V. AC	-4V.D C
2	12SK7GT	0V.	25.5V.AC	0V.	-.4V.DC	0V.	82V.DC	37.5V.AC	82V.DC
3	12SQ7	0V.	-.45V.DC	0V.	-.25V.DC	-.25V.DC	40V.DC	12V.A C	0V.
4	50L6GT	0V.	87V.AC	75V.DC	82V.DC	0V.	0V.	37.5V.AC	5V. DC
5	35Z5GT	0V.	117V.AC	113V.AC	0V.	113V.AC	117V.AC	87V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	24.5 Ω	58K Ω	58 K Ω	8K Ω	.75Ω	11.8 Ω	2.7MEG
2	12SK7GT	0Ω	24.5 Ω	0Ω	2.7MEG	0Ω	58K Ω	37 Ω	58 K Ω
3	12SQ7	0Ω	8 MEG	0Ω	530KΩ	530K Ω	528K Ω	11.8 Ω	0Ω
4	50L6GT	INF	82 Ω	58K Ω	58KΩ	550K Ω	INF	37 Ω	115 Ω
5	35Z5GT	INF	112 Ω	108 Ω	0Ω	108 Ω	112 Ω	82 Ω	58K Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

OLYMPIC
MODEL 6-606

OLYMPIC
MODEL 6-606

OLYMPIC MODEL 6-606

TRADE NAME	Olympic Model 6-606
MANUFACTURER	Olympic Radio & Television Inc. 510 Avenue of the Americas, New York 11, New York
TYPE SET	AC - DC Battery Portable Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC or 90 Volt "B" Battery & 9 Volt "A" Battery
TUNING RANGE—BROADCAST	530-1700KC

ALIGNMENT INSTRUCTIONS

With tuning gang fully closed dial pointer should be adjusted over first thin mark at left end of dial. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. IF receiver is powered with AC, use isolation transformer or connect .1 MFD cap. in series with low lead to chassis and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
50 MMFD	High side to ant. terminal on loop. Low side to chassis.	1500KC	1500KC	"	A5	"
"	"	"	"	"	A6,A7.	"
"	"	600KC	Tune in 600KC signal.	"	A8	Rock dial and adjust for maximum output. Repeat adjustment A5, A6 and A7 at 1500KC and A8 at 600KC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1LN5	1LN5	7AO	
2	Converter	1LA6	1LA6	7AK	
3	IF Amp.	1LN5	1LN5	7AO	
4	Det.-AVC-AF	1LH4	1LH4	5AG	
5	Power Output	1LB4	1LB4	5AD	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	80	150	CO-182	FP309‡	M-80+40-150	EL-351		BRL5515	Filter - Blue
B	20	150				UT-201			" - Red
C	100	15		TC47‡	DGM-100-15			BRH151	Filament Filter - Yel.
8	.1	200	RCP10W2104A	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
9	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
10	.002	600	RCP10W6202M	TP405	S-6-002	TC-22	684-002	DT6D2	1LB4 Plate Bypass
11	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
12	.005	600	RCP10W6502A	TP408	S-6-005	TC-25	684-005	DT6D5	" "
13	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-05	DT4S5	Filament Bypass
14	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-02	DT4S2	AVC Filter
15	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-01	DT6S1	Filament Bypass
16	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-01	DT6S1	AVC Filter
17	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-01	DT6S1	Ant. Coupling
18	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-01	DT6S1	Conv. Screen Bypass
19	47	500	RCM20A470M	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Audio Grid Bypass
20	47	500	RCM20A470M	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	RF Bypass Diode
21	47	500	RCM20A470M	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor
22	10	500	RCM20A100M	MC215	MO.5-41	MS-41	1468-.00001	5W5Q1	Fixed Trimmer*

*Not used in all models.
‡Parallel TC47 with first section of FP to obtain correct capacity.

CONTROLS

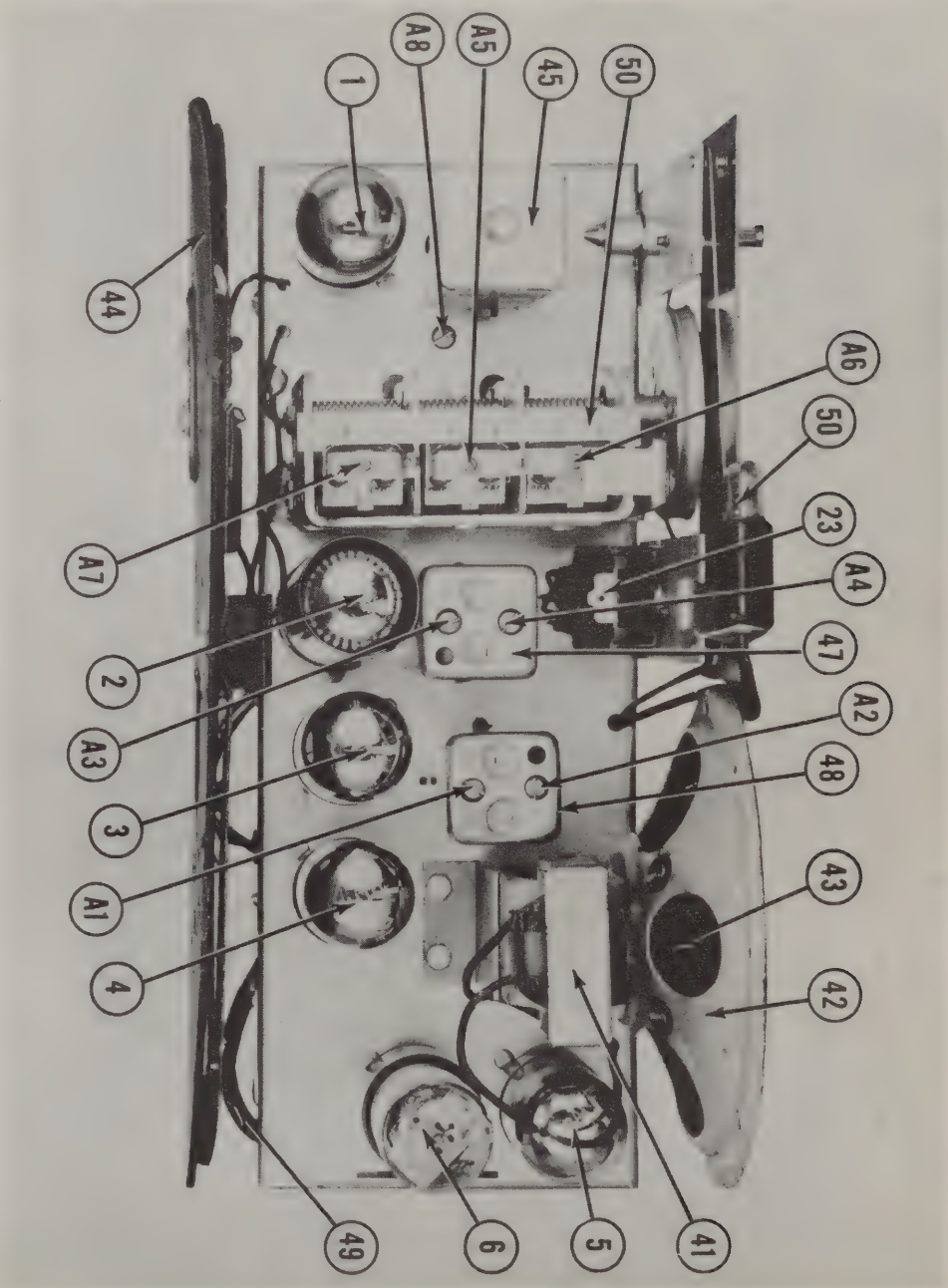
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	2 Meg.	1	PT-383	MK403	D13-139	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	IRC PART No.	IDENTIFICATION CODES
24	1 Meg.	½	REB105M	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
25	3.3 Meg.	½	REB335M	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
26	2.2 Meg.	½	REB225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	220KΩ	½	REB224M	BTS-220K	Red-Red-Yl. Osc. Grid
28	1500Ω	½	REB152M	BTS-1500	Br.-Grn.-Red Filament Shunt
29	27Ω	½	REB270K	BW-½-27	Red-Vi.-Blk. Series Filament
30	68KΩ	½	REB683K	BTS-68K	Blue-Gray-Or. Osc. Screen Dropping
31	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. Diode Load
32	470Ω	½	REB471M	BTS-470	Yl.-Vi.-Br. Filament Shunt
33	6.8 Meg.	½	REB685M	BTS 6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
34	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
35	1 Meg.	½	REB105M	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
36	1500Ω	½	REB152M	BTS-1500	Br.-Grn.-Red Filament Shunt
37	2600Ω	10	RE-407	ABA-3000*	AC DC Filament Dropping
38	3300Ω	1	REC332K	BTA-3300	Or.-Or.-Red Filter
39	27Ω	½	REB270K	BW-½-27	Red-Vi.-Blk. Surge Limiter
40	100Ω	2	RED101M	BW-2-100	Br.-Blk.-Br. Pilot Light Shunt

*Adjust tap to 2600Ω

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
41	8500Ω	3.2Ω	480Ω	.8Ω	Part of SK-156	A-3879†	T-14S84†		†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			OLYMPIC PART No.	JENSEN PART No.		
42	FIELD	VC IMP.	SK-156	ST-106#		#Fabricate new mounting bracket.
	PM	3.2Ω				
43	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			
	4-3/4"	1/2"				

R F COILS

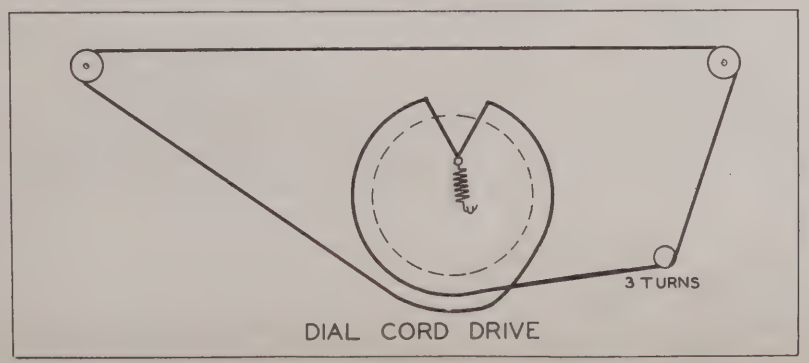
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
44	Loop Ant.	0Ω	1.5Ω	LP178		
45	RF Coil	105Ω	3.3Ω	CL176		
46	Osc. "	4Ω	5.8Ω	CL177	14-1040	
47	Input IF	11.5Ω	11.5Ω	TR186	16-6666	
48	Output IF	11.5Ω	14Ω	TR186	16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OLYMPIC PART No.		
49	Bayonet	6-8	0.15	Brown	BU-187		Type 47

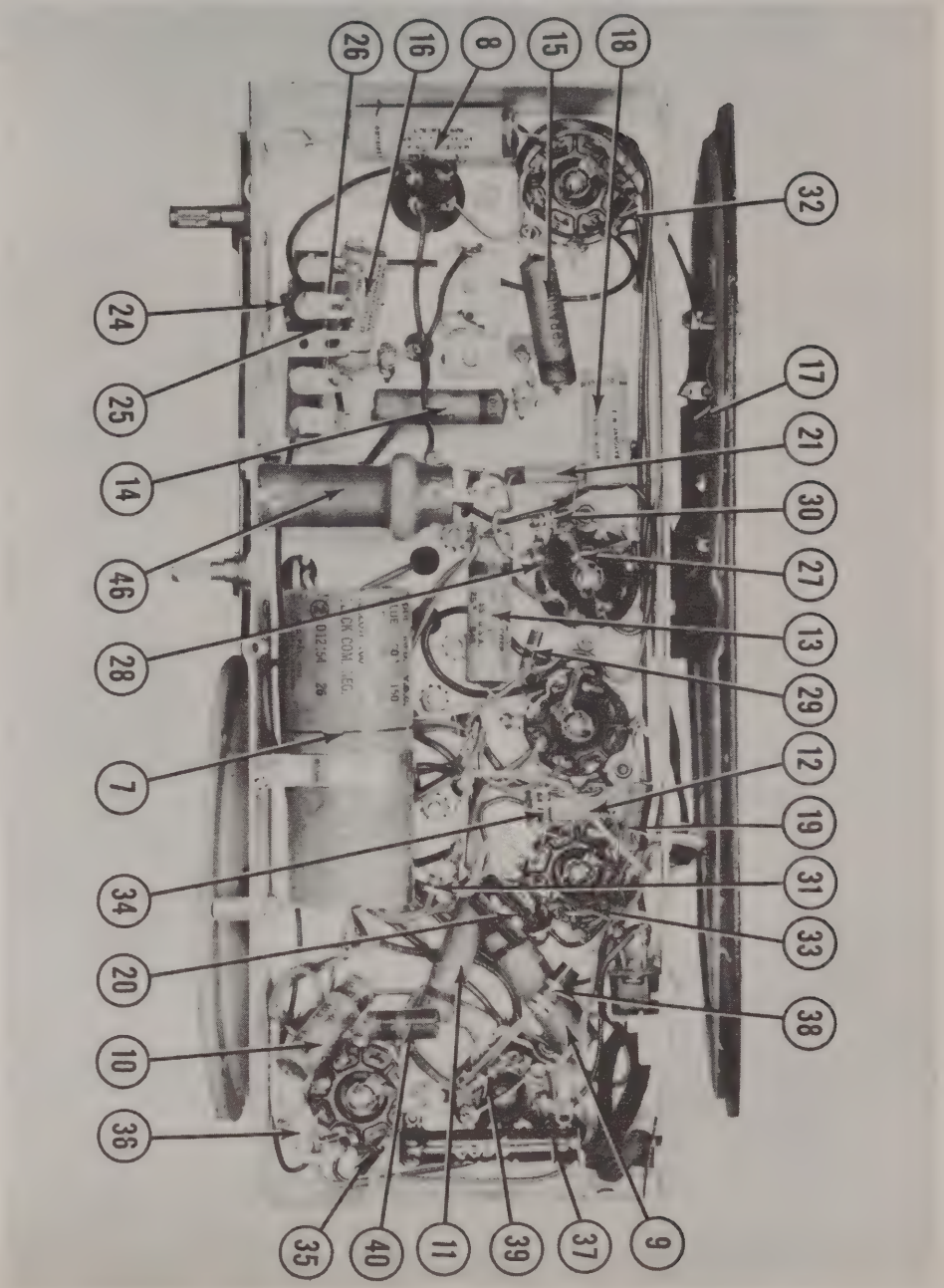
MISCELLANEOUS

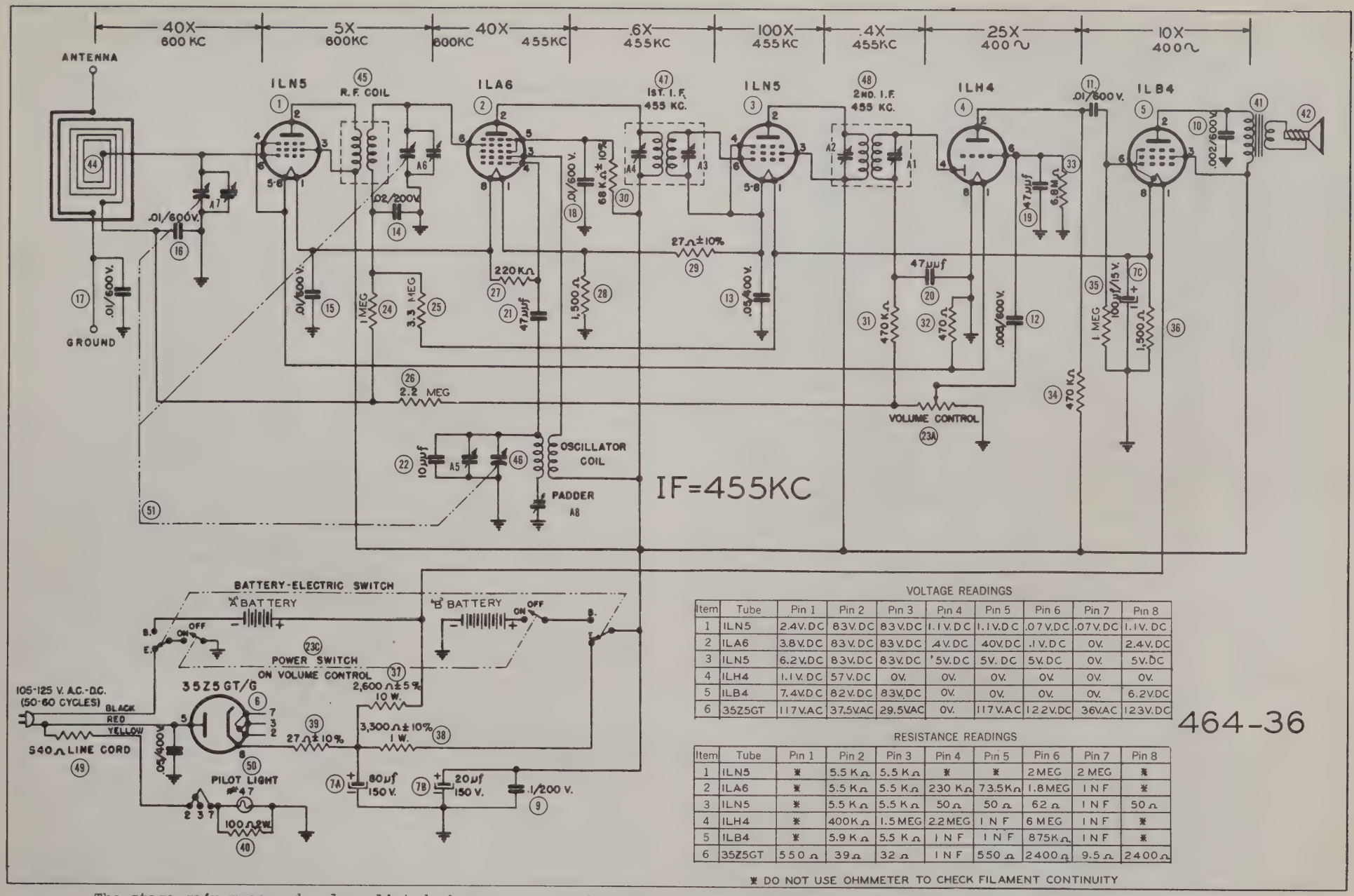
ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
50	Tuning Cap.	CV-146	3 Gang Variable (with pulley)
A8	Padder Cond.	CT-388	Osc. Padder 220-680 MMF
	4½V Battery	BT-232	(A) 2 used #746 Eveready or equiv.
	45V "	BT-233	(B) 2 " #482 " " "
	Cabinet	CA-229	
	Line Cord	LC-315	540Ω Resistance
	Crystal	CR-299	Dial
	Dial Scale	DL-391	Metal
	Knob	KN-260	Walnut
	"	KN-261	" with dot
	Dial Pointer	PO-395	
	Switch	SW-185	Power Selector DPDT



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	2.4V.DC	83V.DC	83V.DC	1.1V.DC	1.1V.DC	.07V.DC	.07V.DC	1.1V. DC
2	1LA6	3.8V.DC	83V.DC	83V.DC	.4V.DC	40V.DC	.1V.DC	0V.	2.4V. DC
3	1LN5	6.2V.DC	83V.DC	83V.DC	'5V.DC	5V. DC	5V.DC	0V.	5V.DC
4	1LH4	1.1V. DC	57V.DC	0V.	0V.	0V.	0V.	0V.	0V.
5	1LB4	7.4V.DC	82V.DC	83V.DC	0V.	0V.	0V.	0V.	6.2V.DC
6	35Z5GT	117V.AC	37.5V.AC	29.5V.AC	0V.	117V.AC	122V.DC	36V.AC	123V.DC

464-36

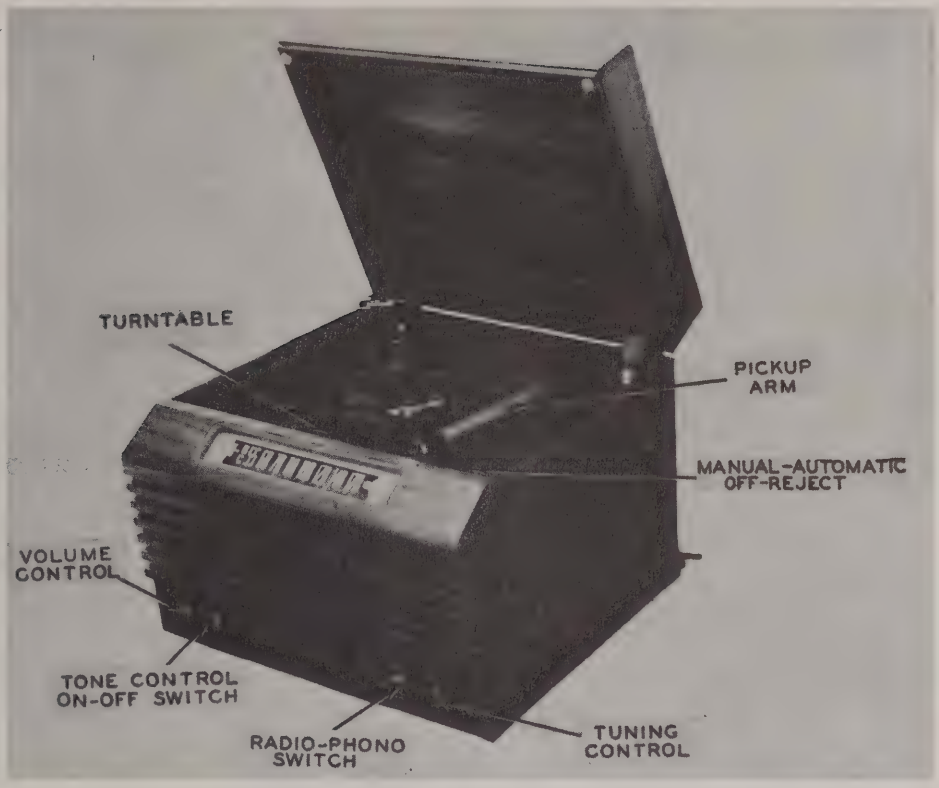
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	*	5.5 KΩ	5.5 KΩ	*	*	2MEG	2 MEG	*
2	1LA6	*	5.5 KΩ	5.5 KΩ	230 KΩ	73.5KΩ	1.8MEG	INF	*
3	1LN5	*	5.5 KΩ	5.5 KΩ	50Ω	50Ω	62Ω	INF	50Ω
4	1LH4	*	400KΩ	1.5MEG	2.2MEG	INF	6 MEG	INF	*
5	1LB4	*	5.9 KΩ	5.5 KΩ	INF	INF	875KΩ	INF	*
6	35Z5GT	550Ω	39Ω	32Ω	INF	550Ω	2400Ω	9.5Ω	2400Ω

* DO NOT USE OHMMETER TO CHECK FILAMENT CONTINUITY

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. Signal kept low as possible to minimize AVC.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



OLYMPIC
MODEL 6-617

OLYMPIC
MODEL 6-617

OLYMPIC MODEL 6-617

TRADE NAME	Olympic Model 6-617
MANUFACTURER	Olympic Radio & Television Div. of Hamilton Radio Corp. 510 Avenue of the Americas, New York 11, N.Y.
TYPE SET	AC Combination Superheterodyne Radio & Auto. Phono.-Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .610 Amps. @ 117V AC
TUNING RANGE—BROADCAST	530-1700KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Check dial pointer with tuning gang plates fully closed as shown on dial back plate diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to RF stator section of tuning gang. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
50 MMFD	High side to ant. terminal on ant. loop. Low side to chassis.	1400KC	1400KC calibration point.	"	A5	" " " "
"	"	"	"	"	A6,A7	" " " "
"	"	600KC	Tune to 600KC signal.	"		Check so that pointer edge at resonance coincides with 600KC calibration point. If deviation is too large repeat adjustments A5, A6 and A7.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co. Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

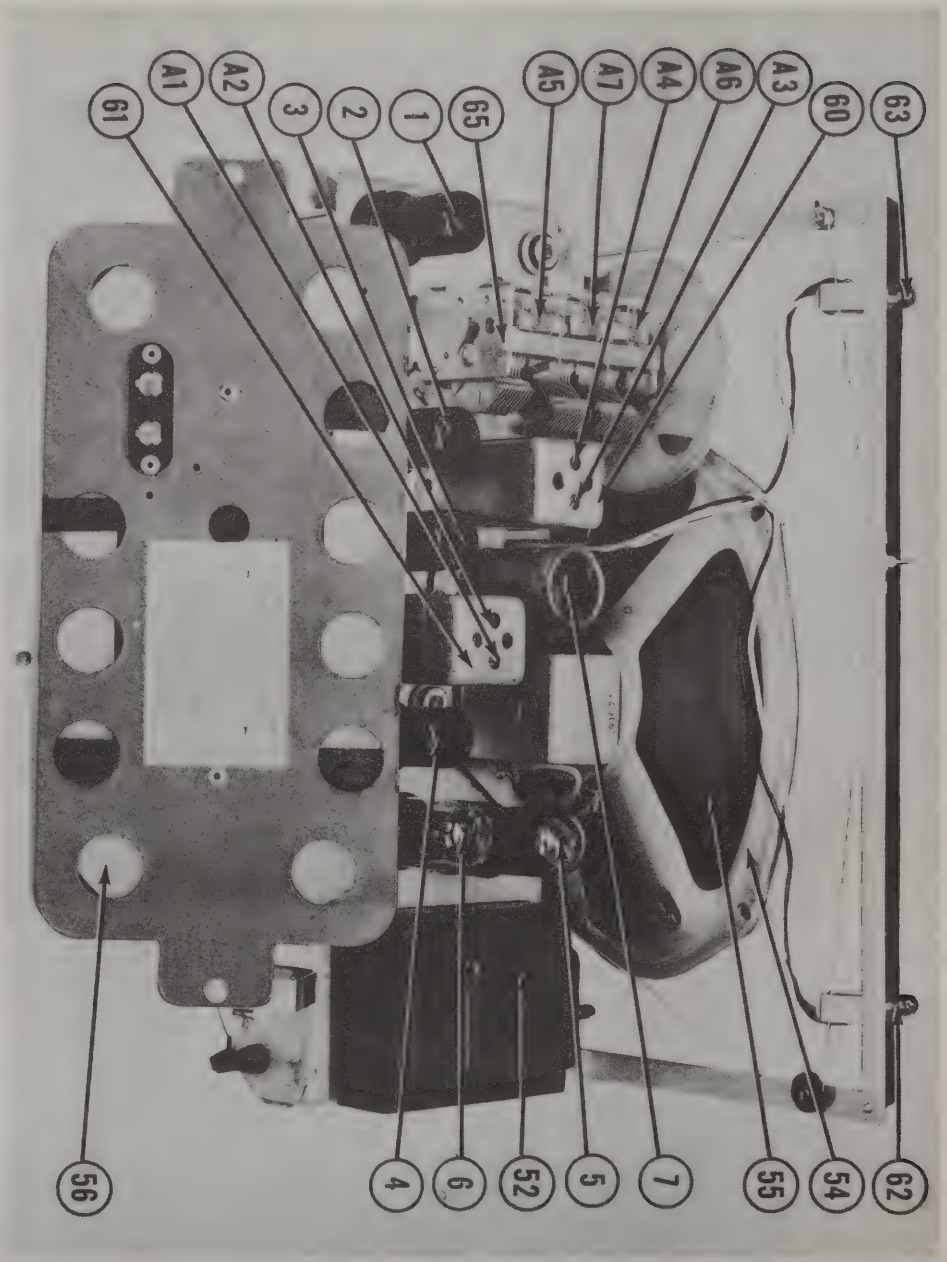
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	20	450	CO-158	FP390	M-20-450	UT-20		BR2045	Filter - Blue
B	10	450			M-2x10-450	UT-816		BR1045	" - Red
C	5	450				TA-50		BR845	Audio Plate Decoup.-Gr
D	50	25		TC29	M-50-25			BR502	6V6 Cath. Bypass - Yel
8	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Bypass
9	.1	400	RCP10W4104L	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
10	.001	600	RCP10W6102A	TP404	S-6-001	TC-21	684-.001	DT6D1	Feedback
11	.005	600	RCP10W6502A	TP426	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
12	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-.02	DT4S2	" "
13	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-.02	DT4S2	Audio Cath. Bypass
14	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
15	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	Screen Bypass
16	.05	200	RCP10W2503A	TP426	S-4-05	TC-15	484-.05	DT4S5	IF Cath. Bypass
17	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	Conv. Plate Bypass
18	.01	600	RCP10W6103A	TP410	S-6-01	TC-11	684-.01	DT6S1	Conv. Screen Bypass
19	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-.02	DT4S2	AVC Filter
20	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-.02	DT4S2	RF Cath. Bypass
21	.02	200	RCP10W2203A	TP423	S-4-02	TC-12	484-.02	DT4S2	AVC Filter
22	330	500	RCM20A331M	MC241	M0.5-33	1FM-335	1468-.00035	5W5T3	Tone Compensation
23	220	500	RCM20A221M	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
24	100	500	RCM20A101M	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Diode Filter
25	220	500	RCM20A221M	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	" "
26	47	500	RCM20A470M	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cap.
27	22	500	RCM20A220M	MC220	M0.5-425	MS-425	1468-.00025	5W5Q25	Fixed Trimmer
28	100	500	RCM20A101M	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
29A	2 Meg.	1	PT105	MK403	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 29A per instructions
30A	500K	1	PT106	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 30 A per instructions
C	Switch		" "	M26	41	SW-A	" " " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	
31	220Ω	½	REB221K	BW-½-220	Red-Red-Br. RF Cathode
32	4700Ω	½	REB472M	BTS-4700	Yl.-Vi.-Red RF Plate Load
33	1000Ω	½	REB102M	BTS-1000	Br.-Blk.-Red Plate Filter
34	1 Meg.	½	REB105M	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
35	22KΩ	½	REB223M	BTS-22K	Red-Red-Or. Osc. Grid
36	10K	1	REC103M	BTA-10K	Br.-Blk.-Or. Screen Dropping
37	1 Meg.	½	REB105M	BTS-1 Meg.	Br.-Blk. Grn. AVC Network
38	330Ω	½	REB331M	BW-½-330	Or.-Or.-Br. IF Cathode
39	68KΩ	½	REB683K	BTS-68K	Blue-Gray-Or. IF Screen Dropping
40	220KΩ	½	REB224M	BTS-220K	Red-Red-Yl. IF Coil Shunt
41	47KΩ	½	REB473M	BTS-47K	Yl.-Vi.-Or. Diode Load
42	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. AVC Network
43	3300Ω	½	REB332M	BTS-3300	Or.-Or.-Red 1st AF Cathode
44	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. 1st AF Grid
45	150KΩ	½	REB154M	BTS-150K	Br.-Grn.-Yl. 1st AF Plate Load
46	10KΩ	1	REC103M	BTA-10K	Br.-Blk.-Or. Filter
47	330KΩ	½	REB334M	BW-½-330	Or.-Or.-Yl. Phono Load
48	150KΩ	½	REb154M	BTS-150K	Br.-Grn.-Yl. Phono Series
49	1.5 Meg.	½	REB155K	BTS-1.5 Meg	Br.-Grn.-Grn. Feedback
50	330Ω	1		BTA-330	Or.-Or.-Br. Output Cathode
51	47KΩ	2	RED473M	BT-2-47K	Yl.-Vi.-Or. Bleeder

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	OLYMPIC PART No.	STANCOR PART No.	THORDASON PART No.
52	117VAC @ .610A	650VAC CT @ 080A	5.0VAC @ 1.8A	6.3VAC @ 1.8A	TR112	P-8013	T-13R13

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
53	5440Ω	3.1Ω	310Ω	.66Ω	Part of SK325	A3825†	T-13S42		†Drill new mounting holes.

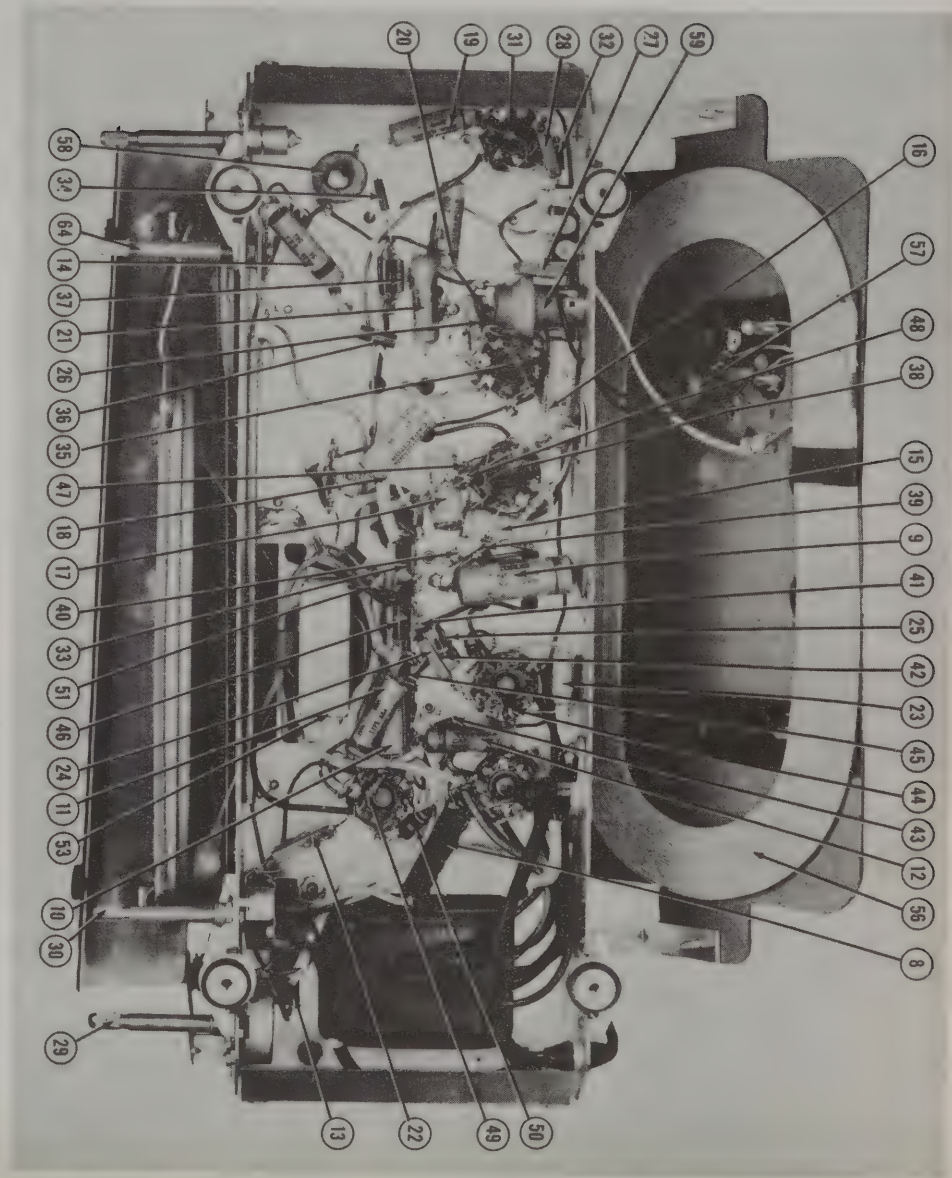
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			OLYMPIC PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
54	500Ω	3.1Ω	SK325			
	CONE DIA.	VC DIA.				
55	9-1/16x6-1/8"	13/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
56	Loop Ant.	.7Ω	1.2Ω	L9179		
57	Ant. Load Coil	1.5Ω		CL609		
58	RF Coil		2.8Ω	CL608	*14-1027	*Use secondary winding only
59	Osc. Coil		5.8Ω	CL210	14-1040	
60	Input IF	24.3Ω	21Ω	TR118	16-6658	
61	Output IF	26.3Ω	20Ω	TR118	16-6660	

CHASSIS—BOTTOM VIEW



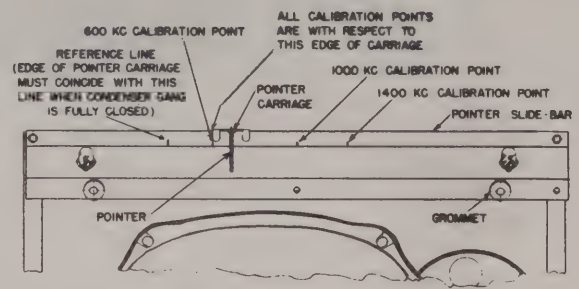
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA OLYMPIC PART No.		INSTALLATION NOTES
62	Bayonet	6-8	0.15	Brown	BU-187		Type 47
63	"	6-8	0.15	"	BU-187		" "

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
64	Switch	SW-141	Phono-Radio DPDT
65	Tuning Cap	CV-145	3 Gang Variable Cap.
	Dial Scale	DL-366	Glass
	Knob	KN-418	"Volume"(Walnut)
	"	KN-419	"Off-On-Tone" (Walnut)
	"	KN-420	"Phono-Radio" "
	"	KN-421	"Tuning" "


600 KC CALIBRATION POINT
ALL CALIBRATION POINTS ARE WITH RESPECT TO THIS EDGE OF CARRIAGE
REFERENCE LINE (EDGE OF POINTER CARRIAGE MUST COINCIDE WITH THIS LINE WHEN CONDENSER GANG IS FULLY CLOSED)
POINTER CARRIAGE
1000 KC CALIBRATION POINT
1400 KC CALIBRATION POINT
POINTER SLIDE-BAR
POINTER
GROMMET

FRONT VIEW OF DIAL BACK-PLATE SHOWING CALIBRATION POINTS

DISASSEMBLY INSTRUCTIONS

1 - Remove the following push-on type knobs: Volume, On-off tone, Phono-radio, Tuning.

2 - Remove 4 screws holding chassis to chassis board.

3 - Disconnect phono-motor plug and phono-pickup jack from chassis.

4 - Remove six wood screws from turntable mounting board. Remove turntable mounting board.

5 - Remove two screws from dial back plate frame holding chassis to cabinet. Remove chassis.

SERVICE NOTE

Dial lights may, in case of failure, be replaced without removing chassis from cabinet. Remove the three bronze plated screws which hold the metal-front-shield to the motorboard and lift the shield. The two sockets holding the pilot lights will then be accessible for replacement of the bulbs.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

OLYMPIC - MODEL 6-617

Page 1 - TUBES (SIX) Types, should be - 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.

Page 2 - Item 1 - OLYMPIC Part Listing and Standard Replacement should be 6SK7, Item 2 - should be 6SA7, Item 3 - should be 6SK7. Item 4 - should be 6SQ7.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	0V.	1.88V.DC	71 V. DC	6.35 V.	245V.DC
2	6SA7	0V.	0V.	275V. DC	98V.DC	-1.5V.DC	0V.	6.35 V.	0V.
3	6SK7	0V.	0V.	0V.	0V.	2.4V.DC	71V.DC	6.35 V.	285V.DC
4	6SQ7	0V.	0V.	1.22VDC	.07V.DC	.07V.DC	136V.DC	6.35V.	0V.
5	6V6GT	0V.	0V.	270V.DC	285V.DC	0V.	217V.DC	6.35V.	14.5V.DC
6	5Y3GT	0V	335V.DC	0V.	320VAC	0V.	320VAC	0V.	330V.DC

TAKEN IN RADIO POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	135KΩ	225Ω	111KΩ	.25Ω	49KΩ
2	6SA7	0Ω	0Ω	44KΩ	60KΩ	23.5Ω	.5Ω	.25Ω	22MEG
3	6SK7	0Ω	0Ω	0Ω	135KΩ	350Ω	111KΩ	.25Ω	43KΩ
4	6SQ7	0Ω	430KΩ	2.6KΩ	540KΩ	540KΩ	172KΩ	.25Ω	0Ω
5	6V6GT	0Ω	0Ω	43KΩ	43KΩ	510KΩ	140KΩ	.25Ω	310Ω
6	5Y3GT	INF	43KΩ	INF	125Ω	INF	118Ω	INF	43KΩ

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms per volt.

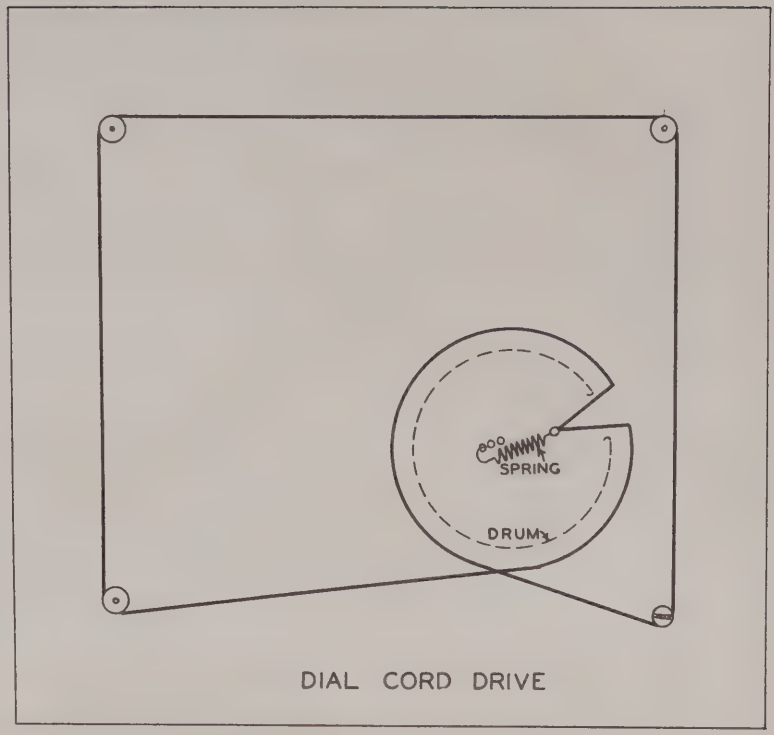
2 - Socket connections are shown as bottom views.

3 - Measured values are from socket pin to common negative.

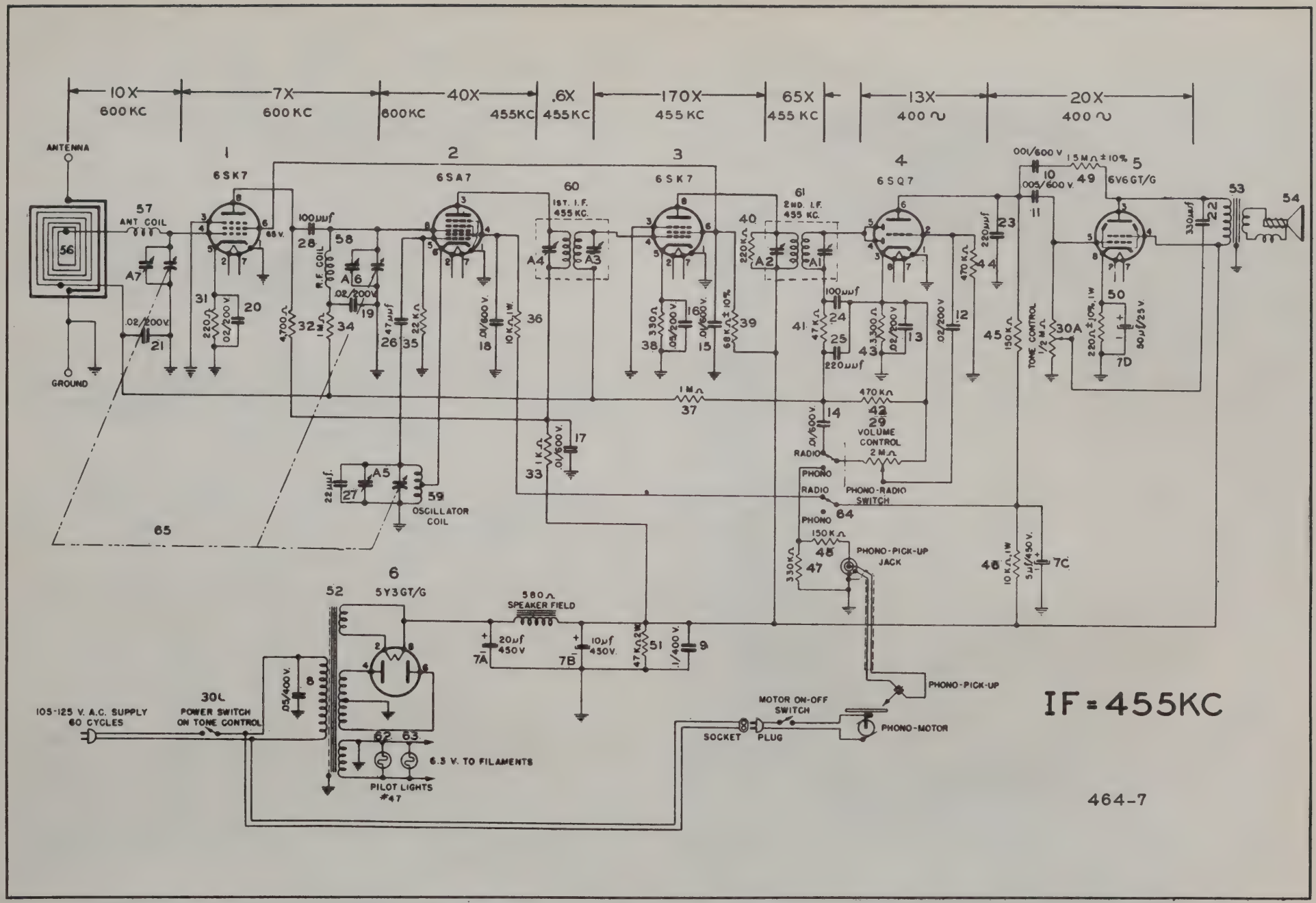
4-- Line voltage maintained at 117 volts for voltage readings.

5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

6 - Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

PHOTOFACT* Folder

*TRADE MARK

PACKARD-BELL, MODEL 651
REPLACES FOLDER NO. 463-12
DATED 8-46

PACKARD-BELL, MODEL 651
REPLACES FOLDER NO. 463-12
DATED 8-46

PACKARD-BELL MODEL 651

TRADE NAME	Packard-Bell Model 651
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, California
TYPE SET	AC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES(SIX)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC Rating .320 Amps. @ 117 V AC
TUNING RANGE—BROADCAST	540-1740KC SHORT WAVE 5.7-18.2MC

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #8 (grid) of 6SA7. Low side to chassis.	455KC	BC	550KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
"	High side to pin #4 of 6SK7. Low side to chassis.	"	"	"	"	A5	Adjust for minimum output
	Loop	1750KC	"	1750KC	"	A6	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop.
	"	600KC	"	600KC	"	A7	"
	"		"		"	A6,A7.	Repeat A6 and A7.
400Ω res.	High side to SW Ant. Lead. Low side to chassis.	18.2MC	SW	18.2MC	"	A8	Adjust for maximum output
"	"	15MC	"	15MC	"	A9	" " " "

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Move loop to one side to gain access to IF adjustments and return to original position for A6 and A7 adjustments.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

9-46—464-42
REPLACES FOLDER
463-12—8-46

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	40	350	24004B	TC78	M-40-450	†	PRS450-40	BR4045	Filter
8	20	350	24003	TC65	M-20-450	UT-203	PRS450-20	BR2045	"
9	.005	600	23004	TP408	S-6-005	TC-25	684-.005	DT6D5	6K6 Plate Bypass
10	.02	600	23007	TP412	S-6-02	TC-12	684-.02	DT6S2	Audio Coupling
11	.005	600	23004	TP408	S-6-005	TC-25	684-.005	DT6D5	" "
12	.05	600	23009	TP415	S-6-05	TC-15	684-.05	DT6S5	AVC Filter
13	.05	600	23009	TP415	S-6-05	TC-15	684-.05	DT6S5	Screen Bypass
14	.05	600	23009	TP415	S-6-05	TC-15	684-.05	DT6S5	AVC Filter *
15	220	500	23206	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
16	220	500	23206	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Vol. Cont.
17	47	500	23225	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
18	100	500	23227	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Coupling
19	5100		23230	MC465	MW.5-25	1FM-25	1467-.005	1D5D5	Fixed Padder

†Parallel two type UT-203 capacitors.
*Used in initial production only.

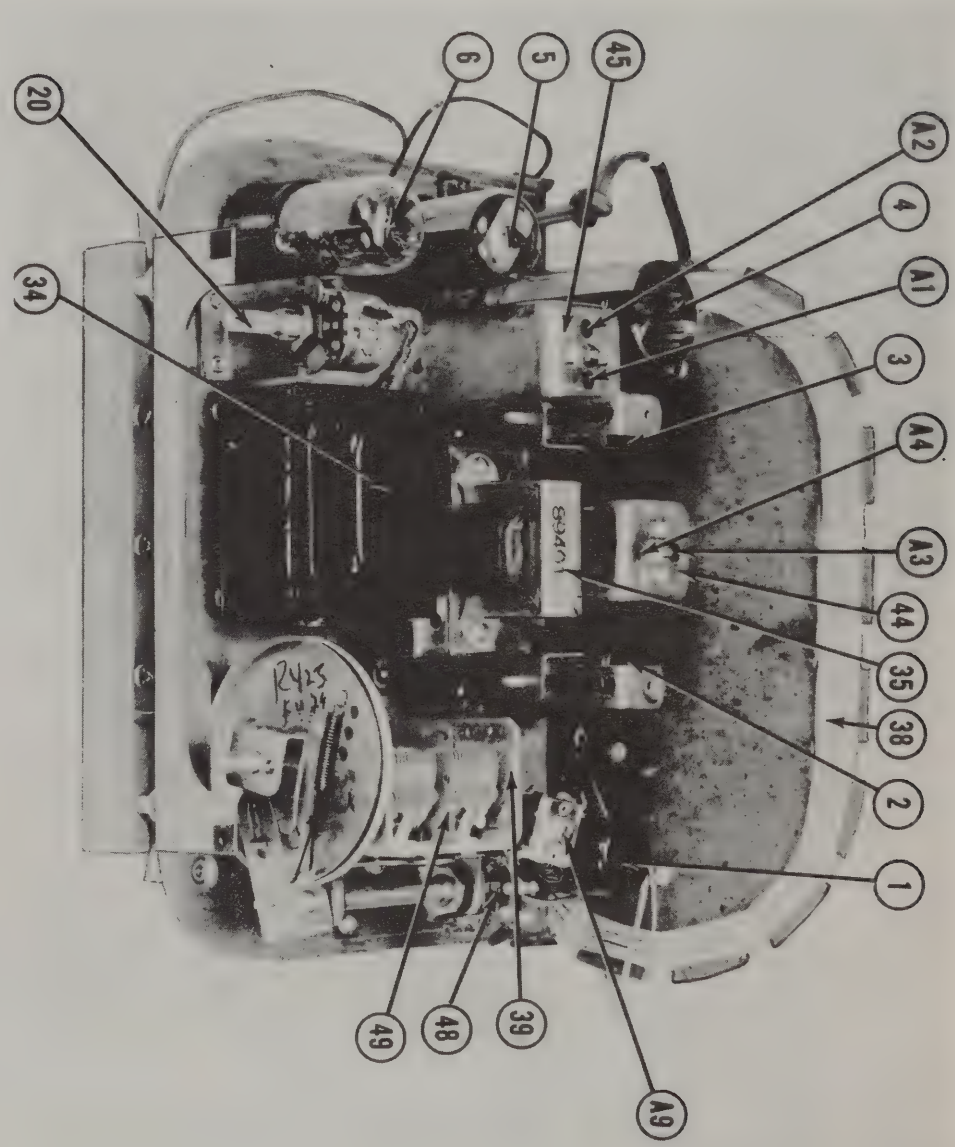
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20 (A)	500KΩ	1	25003A	MR48	D13-133	M-60-Z	Volume Control
(B)	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions.
(C)	Switch		" "	M25	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
21	39Ω	½	7308	BW-½-39	Or.-White-Blk. RF Cathode
22	4700Ω	½	73033	BTS-4700	Yl.-Vi.-Red RF Plate Load
23	10KΩ	½	73037	BTS-10K	Br.-Blk.-Or. Grid Load
24	22KΩ	½	73041	BTS-22K	Red-Red-Or. Osc. Grid
25	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	270Ω	½		BW-½-270	Red-Vi.-Br. IF Cathode
27	4.7 Meg.	½	73057	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
28	100KΩ	½	73047	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
29	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
30	270Ω	1	73074	BW-1-270	Red-Vi.-Br. Fixed Bias
31	1000Ω	2	73126	BT-2-1000	Br.-Blk.-Red Filter
32	2700Ω	1	73079	BTA-2700	Red-Vi.-Red Filter
33	47Ω	½	73009	BW-½-47	Yl.-Vi.-Blk. SW Osc.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.	
34	117V. @ .320A.	410V @ .080A.	5.6V @ 2.3A.		89001A	P-6120	T-13R20	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PACKARD-BELL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
35	4400Ω	3Ω	600Ω	.56Ω	89401B	A-3878	T-13S39		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PACKARD-BELL PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
36	PM	2.2Ω	83202	ST-105		
	CONE DIA.	VC DIA.				
37	4-5/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PACKARD-BELL PART No.	MEISSNER PART No.	
38	Loop Ant.	.2Ω	1.8Ω	29302C		
39	SW Ant. Coil		0Ω	29402		
40	Peaking Coil	3Ω		29006		Part Number Includes 5700Ω .5 Watt Resistor
41	Wave Trap Coil	52Ω		29005		
42	BC Osc.Coil	.5Ω	5.5Ω	29204A		Wound On Same Form With SW Osc. Coil
43	SW Osc.Coil	0Ω		29204A		" " " " " " BC " "
44	Input IF	17Ω	16.5Ω	29004D	13-6658	
45	Output IF	16Ω	16Ω	29001D	16-6660	

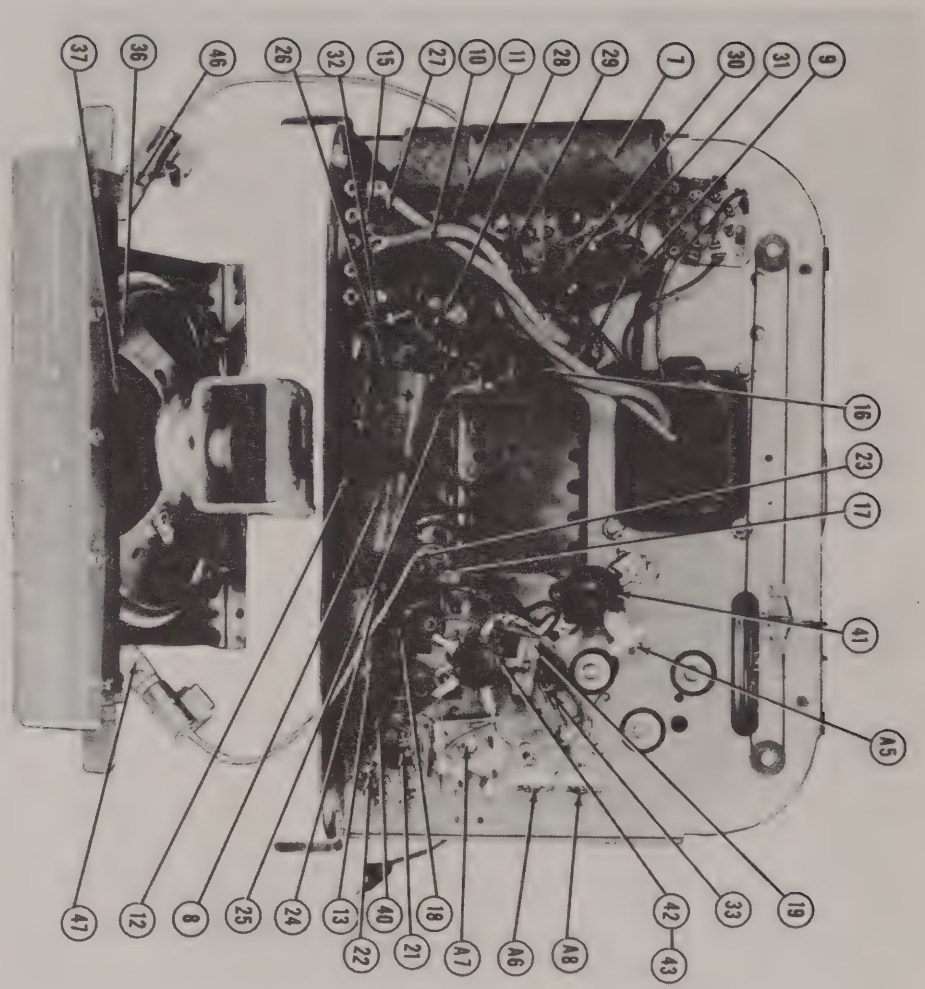
DIAL LIGHT

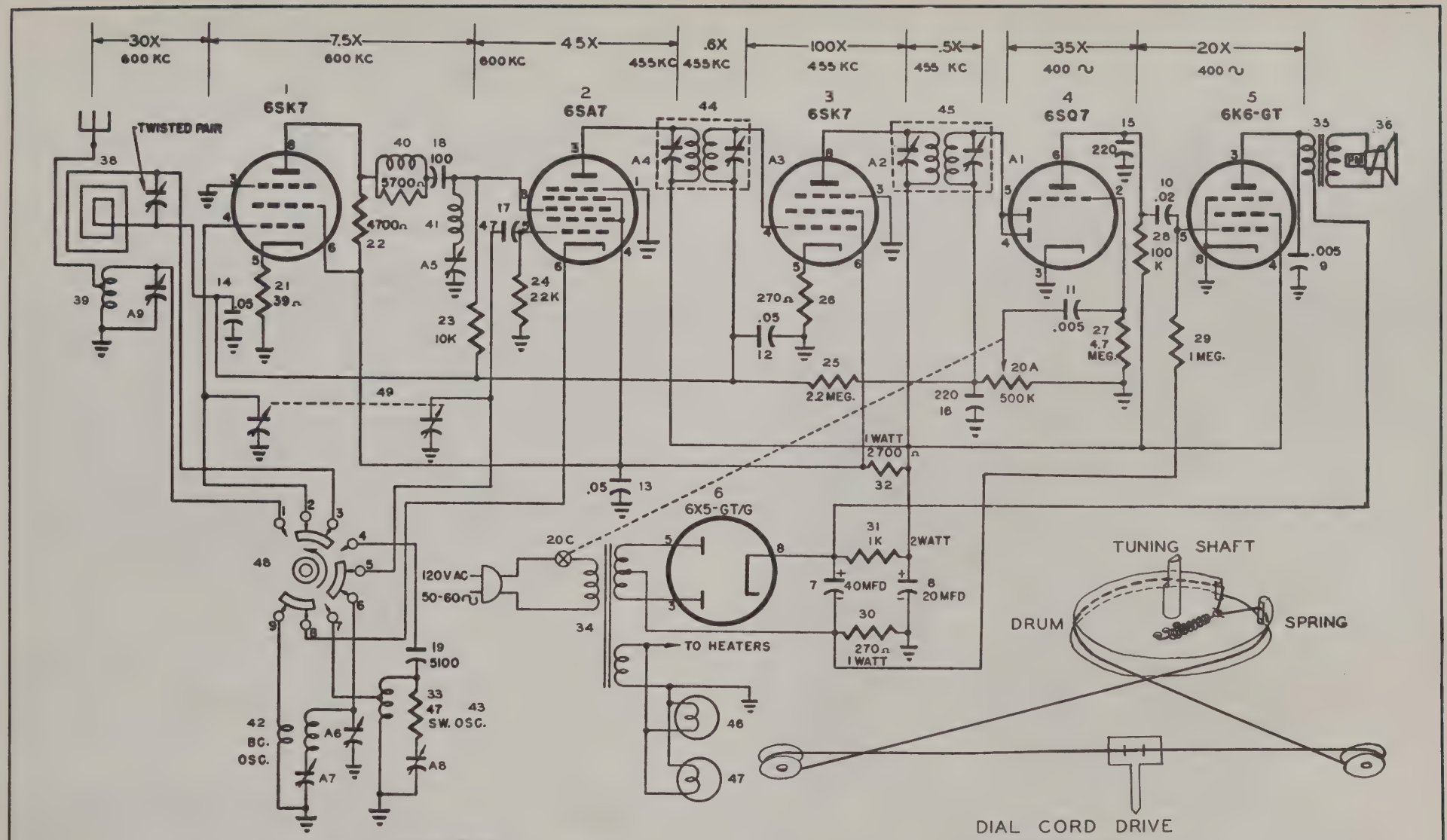
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PACKARD-BELL PART No.		
46	Bayonet	6-8	0.15	Brown	54002		Type 47
47	"	6-8	0.15	Brown	54002		" "

MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
48	Band Switch	86002C	
49	Tuning Cap.	23504D or 23510	2 Gang Variable Cap.
A5	Trimmer	23403A	IF Wave Trap Adj. 3-50 MMF.
A6	"	23403A	BC Osc. Trimmer 3-50 MMF.
A7	"	23404A	BC Osc. Padder 300-850 MMF.
A8	"	23403A	SW Osc. Trimmer 3-50 MMF.
A9	"	23403A	SW Antenna Trimmer 3-50 MMF.
	Dial Scale	38026A	Stationized
	" "	38007	Export
	Knob	C52008D	Plastic-Walnut
	"	A52008D	" -Bleach
	Handle	A49404E	" -Walnut
	"	B49404E	" -Bleach
	Cabinet	A21003D	Wood - Walnut
	"	B21003D	" - Bleached

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0 V.	0 V.	0 V.	0 V.	.5 V.DC	95 V.DC	5.8 V.AC	47 V.DC
2	6SA7	0 V.	0 V.	167 V.DC	95 V.DC	-.1 V.DC	0 V.	5.8 V.AC	0 V.
3	6SK7	0 V.	5.8 V.AC	0 V.	0 V.	2.5 V.DC	95 V.DC	0 V.	168 V.DC
4	6SQ7	0 V.	-4.5 V.DC	0 V.	-3 V.DC	-3 V.DC	110 V.DC	5.8 V.AC	0 V.
5	6K6GT	0 V.	0 V.	198 V.DC	170 V.DC	- 2.8 V.DC	0 V.	5.8 V.AC	0 V.
6	6X5GT	0 V.	0 V.	208 V.AC	0 V.	208 V.AC	0 V	5.8 V.AC	207 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	0Ω	37Ω	76KΩ	.1Ω	76KΩ
2	6SA7	0Ω	0Ω	76KΩ	76KΩ	22 KΩ	0Ω	.1Ω	2.2MEG
3	6SK7	0Ω	.1Ω	0Ω	2.3MEG	260Ω	76KΩ	0Ω	76KΩ
4	6SQ7	0Ω	4.5MEG	0Ω	.5MEG	.5MEG	182 KΩ	.1Ω	0Ω
5	6K6GT	0Ω	0Ω	76KΩ	76KΩ	1.1MEG	INF	.1Ω	0Ω
6	6X5GT	0Ω	0Ω	500Ω	INF	510Ω	INF	.1Ω	76KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHILCO
MODEL 46-132

PHILCO
MODEL 46-132

PHILCO MODEL 46-132

TRADE NAME	Philco Model 46-132
MANUFACTURER	Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.
TYPE SET	Battery Operated Superheterodyne
TUBES (FIVE)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 2- 1A5GT Power Output
POWER SUPPLY	90Volts "B" Battery - 1.5 Volts "A" Battery in Pack Form
RATING	10.7 MA @ 90 Volts DC plus .270 Amps. @ 1.5 Volts DC
TUNING RANGE—BROADCAST	540-1720KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Check dial pointer position with gang fully closed. Should be over small hole 3-3/4" from left end of scale plate. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
100 MMFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	540KC (small hole 3-3/4" from left end of scale plate)	Across voice coil	A1,A2, A3.	Adjust for maximum output.
"	High side to ant. (blue) lead. Low side to chassis.	1700KC	1700KC (small hole 4-1/8" from right end of scale plate)	"	A4	" " " "
"	"	1500KC	Tune in 1500 KC signal.	"	A5	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1LA6	1LA6	7AK	
2	IF Amp.	LN5	1LN5	7AO	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	1A5GT	1A5GT	6X	
5	Power Output	1A5GT	1A5GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	10	150	30-2540	TC42	M-10-150	UT121	PRS150-10	BR1215	RF Bypass Pwr. Supp.
7	.001	600	30-4620	TP404	S-6-001	TC-21	684-.001	DT6D1	Phase Inverter Coup.
8	.001	600	30-4620	TP404	S-6-001	TC-21	684-.001	DT6D1	Audio Coupling
9	.001	600	30-4620	TP404	S-6-001	TC-21	684-.001	DT6D1	" "
10	.05	200	30-4518	TP426	S-4-05	TC-15	484-.05	DT4S5	Conv. Screen Bypass
11	.05	200	30-4518	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
12	730	500	6010755301	MC251	MO.3-37	1FM-37	1468-.0007	1W5T7	1A5 Plate Bypass
13	100	500	6010105407	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
14	50	500	6000513507	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Tone Compensation
15	100	500	6010105407	MC235	MO.5-31	1FM-31	1438-.0001	5W5T1	Osc. Grid Capacitor
16	5	500	6090505007	MCB205	MOS.5-55	MS-55	1469-.000005	5W5V5	Ant. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	1 Meg.	1	33-5493	MR53	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

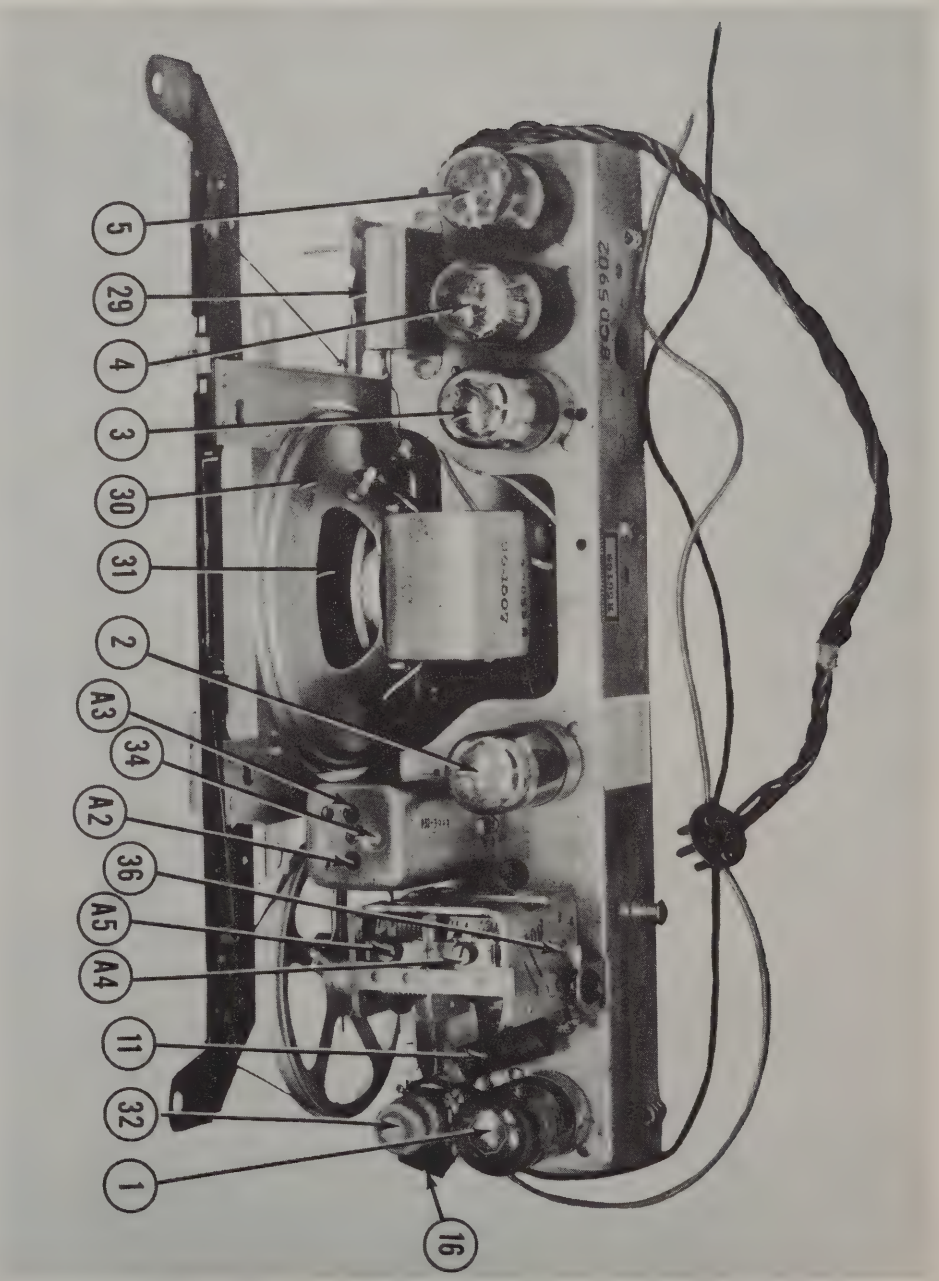
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
18	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
19	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. Osc. Grid
20	68KΩ	½	66-3683340	BTS-68K	Blue-Gray-Or. Mixer Screen Dropping
21	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
22	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Compensation
23	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
24	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
25	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
26	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. " "
27	4700Ω	½	66-2473340	BTS-4700	Yl.-Vi.-Red Screen Load
28	560Ω	1	66-1564360	BTA-560	Grn.-Blue-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
29	23000Ω	3.3Ω	2000Ω	.4Ω	32-8152	A-3357	T-14S83		

CHASSIS—TOP VIEW



ITEM No.

30

31

ITEM No.

32

33

34

35

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

PHILCO - MODEL 46-132

Page 3 - Item 30 - JENSEN Part Listing should be ST-105 Mod. P5-X*. Add Installation Note- "Drill new mounting holes."
Page 3 - Item 32 - MEISSNER Part Listing should be 14-1027.
Page 3 - Item 35 - MEISSNER Part Listing should be 16-6661.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PHILCO PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
30	PM	3.3Ω	36-1507			
	CONE DIA.	VC DIA.				
31	5"	½"	SPEAKER HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER			

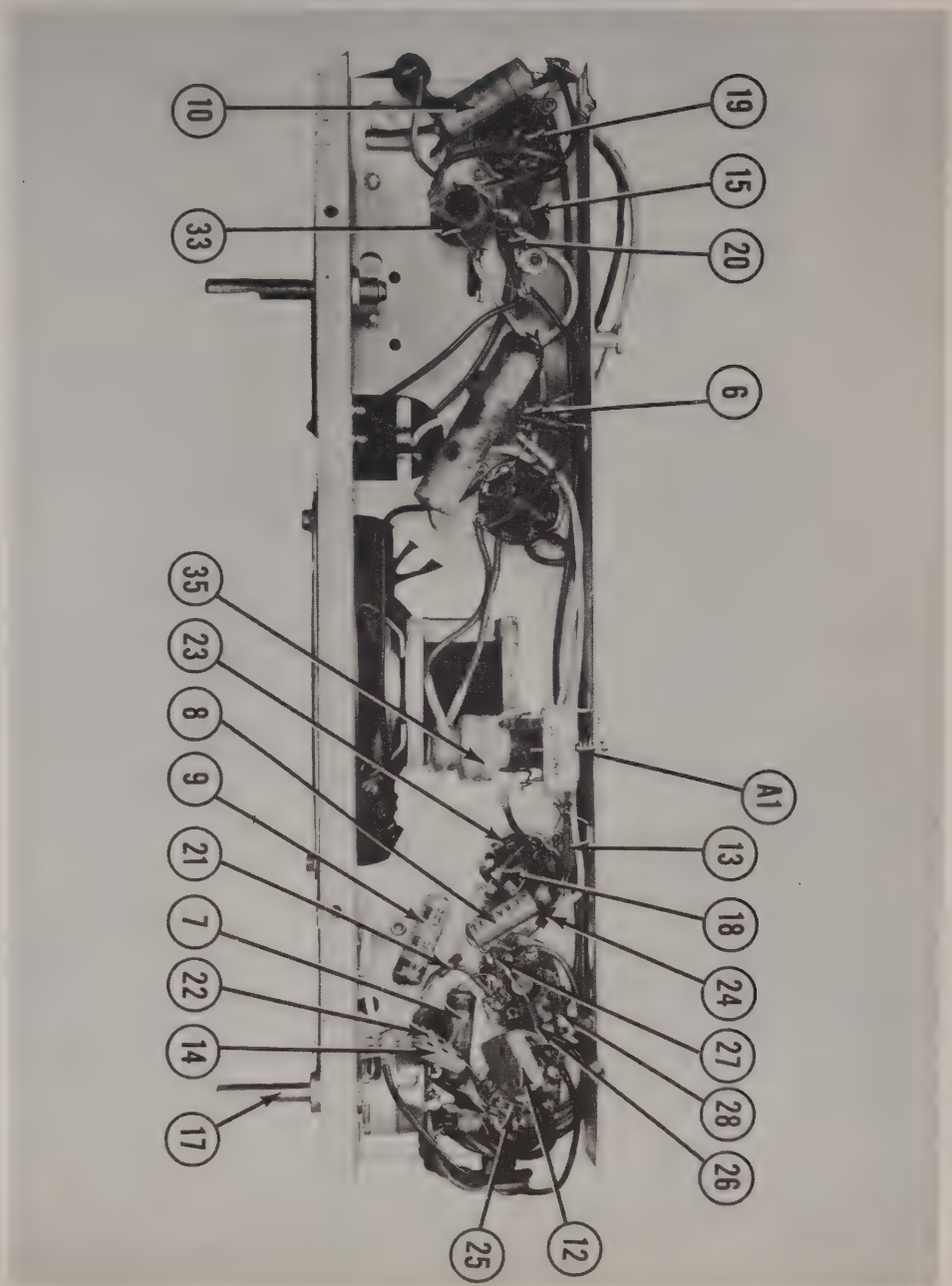
R F COILS

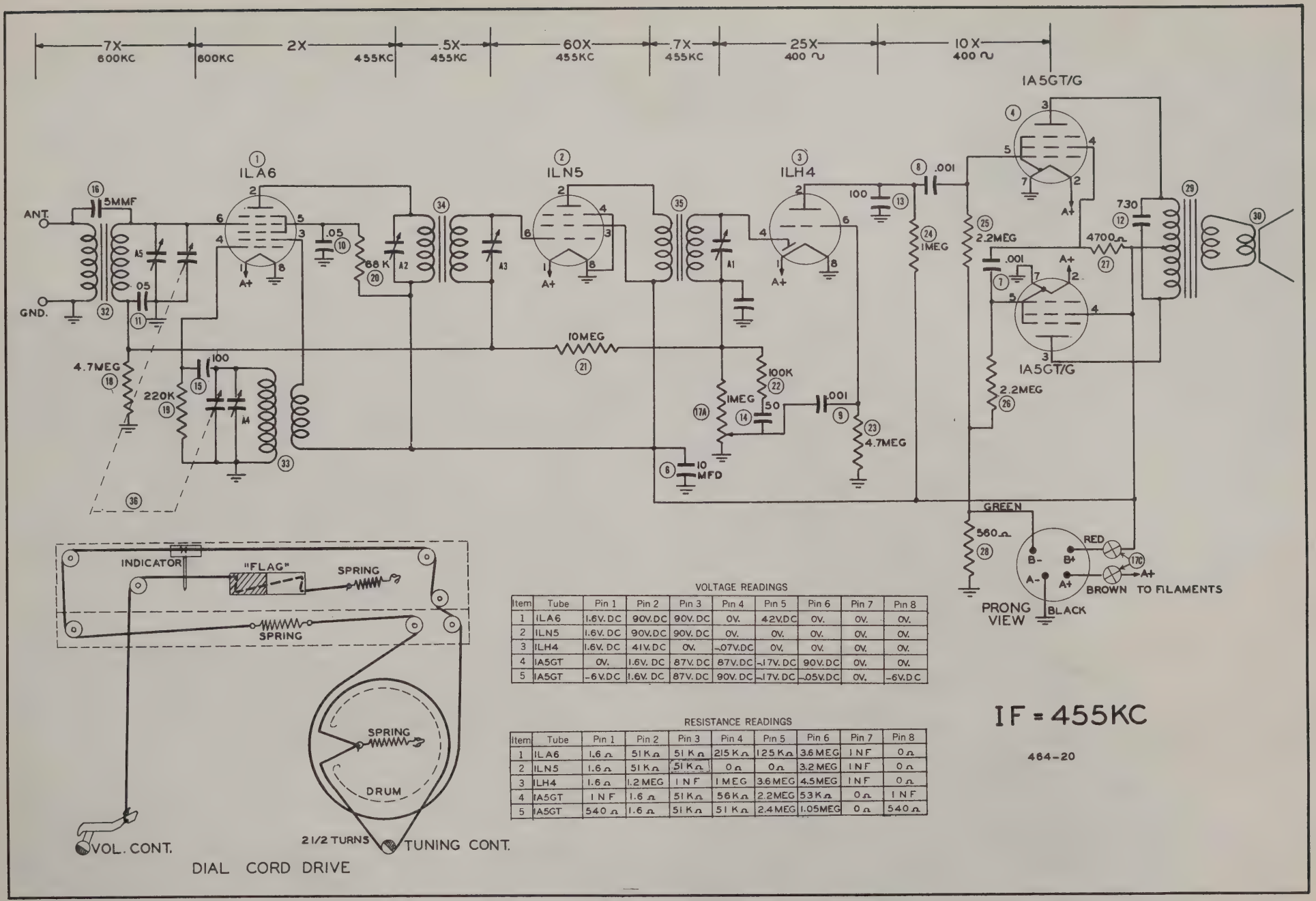
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
32	Ant. Coil	15Ω	2.2Ω	32-3920		
33	Osc. Coil	1.5Ω	7.3Ω	32-3184	14-1040	
34	Input IF	15Ω	19Ω	32-3949	16-6658	
35	Output IF	32.3Ω	7.8Ω	32-3963		

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
36	Tuning Cap.	31-2708	2 Gang Variable Cap.
	Battery	41-8022	Type P-60-D-11L
	Cable Assby.	41-3669	Battery
	Plug	36-3339	" Cable
	Shaft	31-2554	Tuning Assby.
	Arm Assby.	76-1672	Flag Operative
	Flag	56-2180FCP	
	Pointer	56-2159FCP	
	Knob Assby.	54-4101	
	Cabinet	10627	Wood (scale & bezel included)
	Drive Cord	45-1420	Tuning Cap.
	" "	45-1459	Flag & Pointer
	Dial Scale	27-5876	
	Spring	28-3953	Pointer Dial Drive
	"	28-8913FA3	Tuning Capacitor
	"	56-2179	Flag

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.6V.DC	90V.DC	90V.DC	0V.	42V.DC	0V.	0V.	0V.
2	1LN5	1.6V.DC	90V.DC	90V.DC	0V.	0V.	0V.	0V.	0V.
3	1LH4	1.6V.DC	41V.DC	0V.	-.07V.DC	0V.	0V.	0V.	0V.
4	1A5GT	0V.	1.6V.DC	87V.DC	87V.DC	-1.7V.DC	90V.DC	0V.	0V.
5	1A5GT	-6V.DC	1.6V.DC	87V.DC	90V.DC	-1.7V.DC	-.05V.DC	0V.	-6V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.6Ω	51KΩ	51KΩ	215KΩ	125KΩ	3.6MEG	INF	0Ω
2	1LN5	1.6Ω	51KΩ	51KΩ	0Ω	0Ω	3.2MEG	INF	0Ω
3	1LH4	1.6Ω	1.2MEG	INF	1MEG	3.6MEG	4.5MEG	INF	0Ω
4	1A5GT	INF	1.6Ω	51KΩ	56KΩ	2.2MEG	53KΩ	0Ω	INF
5	1A5GT	540Ω	1.6Ω	51KΩ	51KΩ	2.4MEG	1.05MEG	0Ω	540Ω

IF = 455KC

464-20

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. RF IF stage gain values measured with 3 volts fixed bias should not be considered as representing true sensitivity of set under normal conditions.

1 - DC Voltage measurements are at 20,000 ohms per volt;

2 - Socket connections are shown as bottom views.

3 - Measured values are from socket pin to common negative.

4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

5 - Volume control at maximum, no signal applied for voltage measurements.

PHILCO
MODEL 46-1201

PHILCO
MODEL 46-1201

PHILCO MODEL 46-1201

TRADE NAME	Philco Model 46-1201
MANUFACTURER	Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.
TYPE SET	AC Combination Auto. Phono. & Superheterodyne Radio - Self Contained Loop Ant.
TUBES (FIVE)	Types, 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 35L6GT Power Output, 50Y6GT Rectifier.
POWER SUPPLY	105-120 Volts AC RATING - .345 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Install chassis in cabinet and connect loop before starting to align. Connect ground lead of signal generator to lug on antenna coil (same lug where antenna coupling capacitor (18) is connected). Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to ext. ant. lead. After disconnecting same from ground on chassis.	455KC	Low freq. end of dial. Gang in mesh.	Across voice coil (Lug on speaker to ground)	A1,A2, A3,A4.	Turn A4 down tight then adjust in order (including A4) for maximum output.
"	"	1600KC	1600KC	"	A5	Adjust for maximum output.
"	"	1500KC	1500KC	"	A6	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	7A8	7A8	8U	
2	IF Amp.	7B7	7B7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Power Output	35L6GT	35L6GT	7AC	
5	Rectifier	50Y6GT	50Y6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	15	150	30-2559	TC44	M-16-150	UT-161	PRS150-13	BR1615	Filter
7	15	150	30-2559	TC44	M-13-150	UT-161	PRS150-13	BR1315	"
8	40	150	30-2548	TC48	M-40-150	UT-401	PRS150-40	BR4015	"
9	.04	400	45-3500-2	TP425	S-6-04	TC-14	484-.04	DT4S4	Line Filter
10	.2	200	45-3500-3	TP429	S-4-2	TC-2	484-.2	DT4P2	Bias Filter
11	.03	400	45-3500-1	TP424	S-6-03	TC-13	484-.03	DT4S3	35L6 Plate Bypass
12	.01	400	61-0120	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
13	.01	400	61-0120	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
14	.2	200	45-3500-3	TP429	S-4-2	TC-2	484-.2	DT4P2	Shield Isolation
15	.05	200	61-0122	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
16	.2	200	76-1161	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating Trap *
17	.1	200	61-0113	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
18	.0015	600	45-3500-6	TP404	S-6-001	TC-21	684-.001	DT6D1	Ant. Coupling
19	240	500	6010245307	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	35L6 Grid Bypass
20	100	500	6010105407	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Bypass Vol. Cont.

* Wind same number of turns on replacement as on original.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21	1 Meg.	1	33-5519				Volume control & SW - See note.

Note - Item 21 acts as two 500KΩ controls tapered opposite each other from center tap.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
22	120KΩ	½	66-4123340	BTS-120K	Br.-Red-Yl. Osc. Grid - See Note 1
23	47KΩ	½	63-3473340	BTS-47K	Yl.-Vi.-Or. Screen Dropping
24	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
25	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Filter
26	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. Series Phono - See Note 2
27	68KΩ	½		BTS-68K	Blue-Gray-Or. " " " " "
28	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. 1st AF Plate Load
29	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. Output Grid
30	120KΩ	½	66-4123340	BTS-120K	Br.-Red-Yl. Bias Voltage Divider
31	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Bias Voltage Divider
32	80Ω-65Ω	10	33-3426	ABA-150†	Line Dropping and Surge Limiter
33	120K	½	66-4123340	BTS-120K	Br.-Red-Yl. Line Isolating - See Note 3

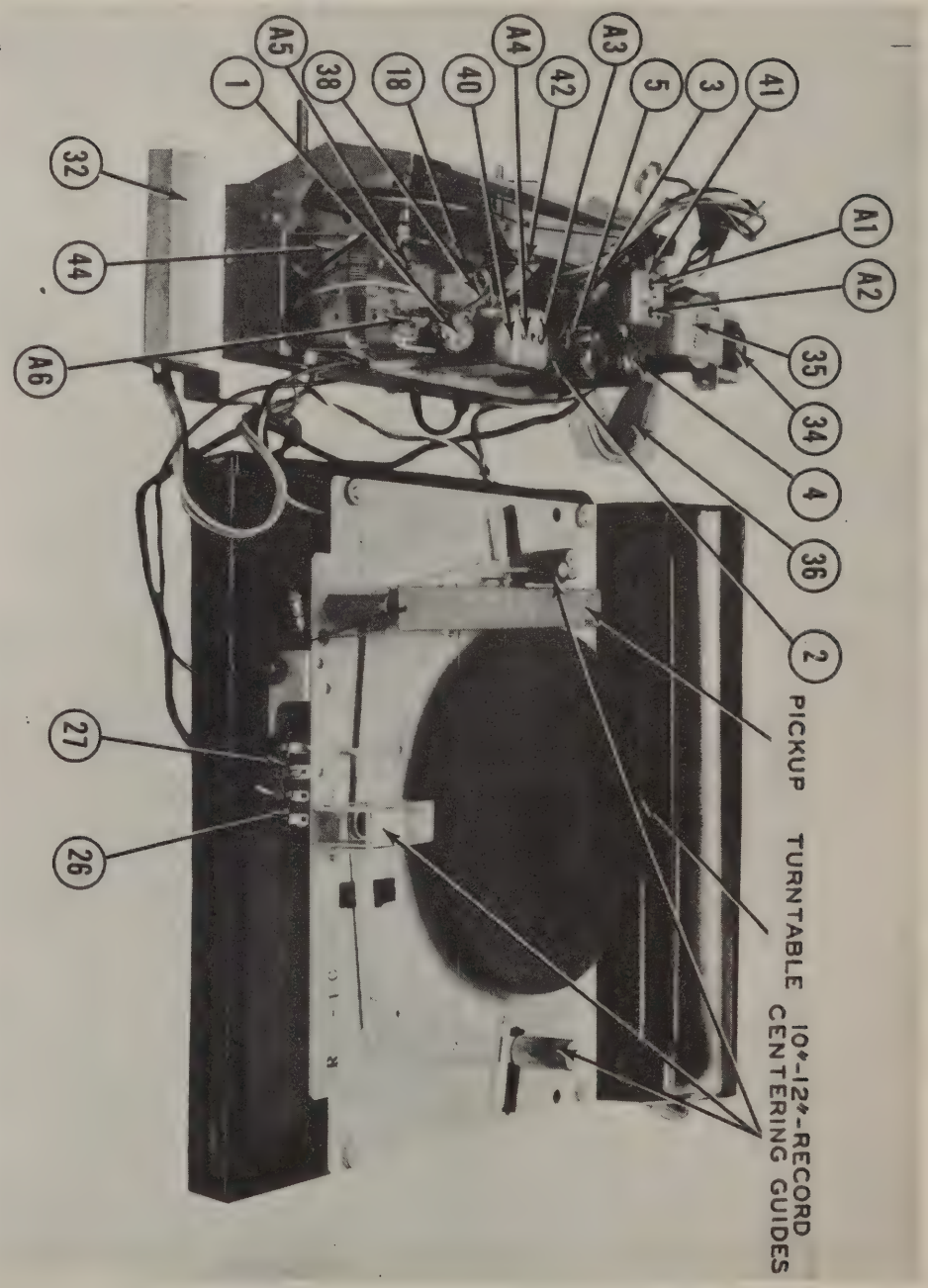
Note 1 - Some models use a 47KΩ resistor in this application. Replacement same as item 23.

Note 2 - Some models use a single 10 Meg.Ω resistor in place of items 26 & 27. Replacement same as item 24.

† Adjust tap to 65Ω from one end.

Note 3 - Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
34	2200Ω	3.3Ω	210Ω	.8Ω	32-8172	A-3876	T-14882		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
35	1400Ω	3.3Ω	36-1581			
	CONE DIA.	VC DIA.				
36	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
37	Loop Ant.	3.3Ω		76-2127		
38	Ant. Coil	32Ω	.8Ω	32-3394		
39	Osc. "	3Ω	7Ω	32-3562	14-1040	
40	Input IF	25Ω	25Ω	32-3968	16-6658	
41	Output IF	21Ω		32-4005	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
42	Screw	110	0.5		34-2477		Type C7, bulb is frosted.

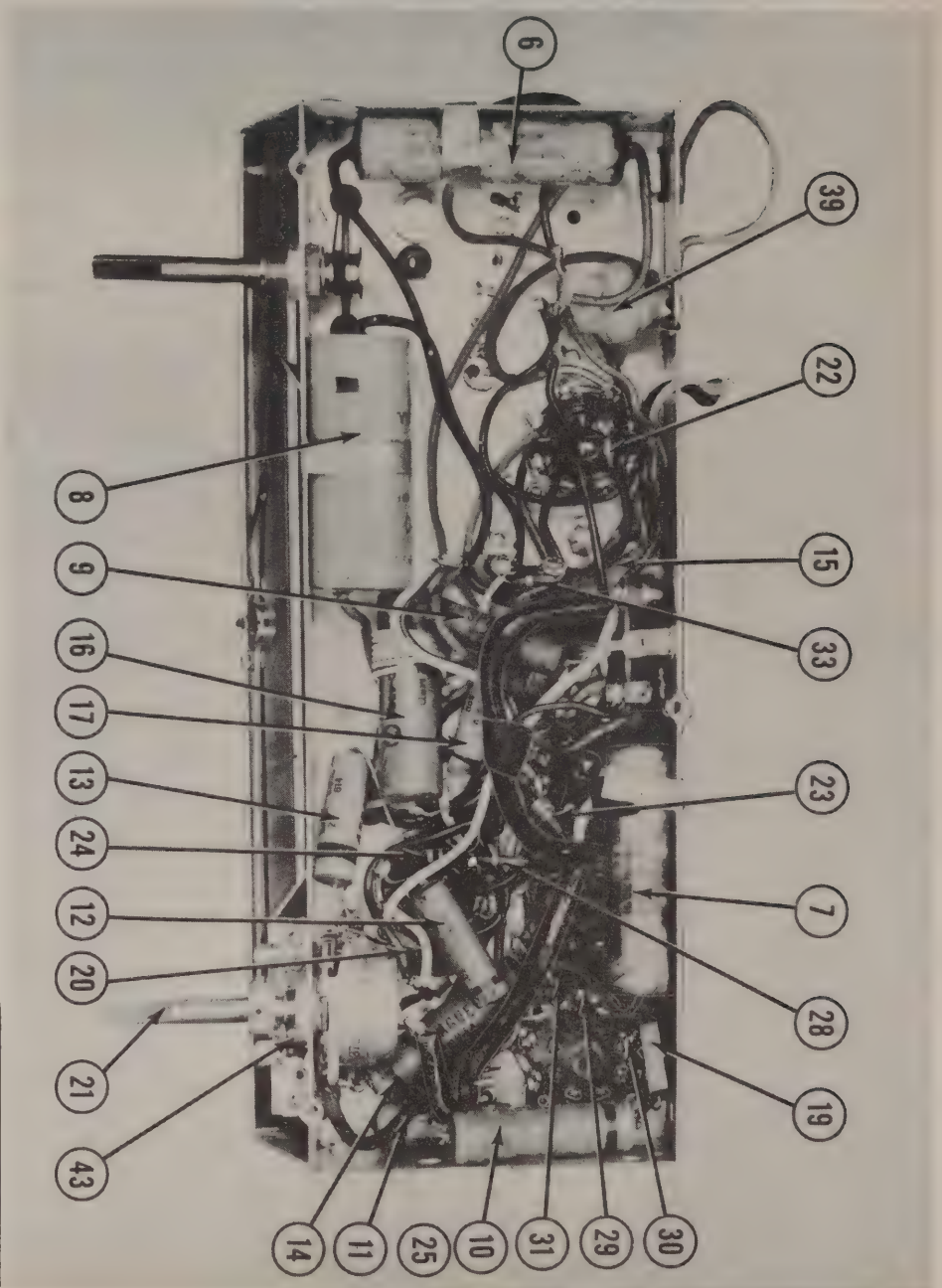
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
43	Switch		Radio Phono DPDT
44	Tuning Cap.	31-2659	2 Gang Variable Cap.
	Dial Scale	27-5883	
	Knob Assby.	54-4255	
	Dial Pointer	56-2076 FCP	
	Switch LeverAssy	76-1642	

DISASSEMBLY INSTRUCTIONS

1 - Remove tuning control and volume control push-on type knobs.
2 - Remove four wood screws holding chassis board to cabinet.
3 - Remove four rubber-cushioned screws holding cover board on bottom of record changer.
4 - Remove four clip buttons from cover board.
5 - Remove two brackets holding bottom metal retainer of phono player by removing four machine screws and nuts from cabinet.
6 - Have phono-radio right side up. Now slide cabinet toward rear holding down the two catches that appear inside the record changer door. The record changer now slides out.
7 - Remove four nuts and four washers holding speaker to cabinet. Remove speaker.
8 - Remove Phillips head screw holding resistor mounting assembly to cabinet. Remove assembly.
9 - Unsolder antenna loop lead from coil. Unsolder the other lead going to tuning gang capacitor.
10- Remove 3 hex screws and lead wire clips from chassis board holding chassis.
11- Remove line cord holder from cabinet by removing Phillips head screw and leather holder. Remove line cord.
12- Remove chassis.

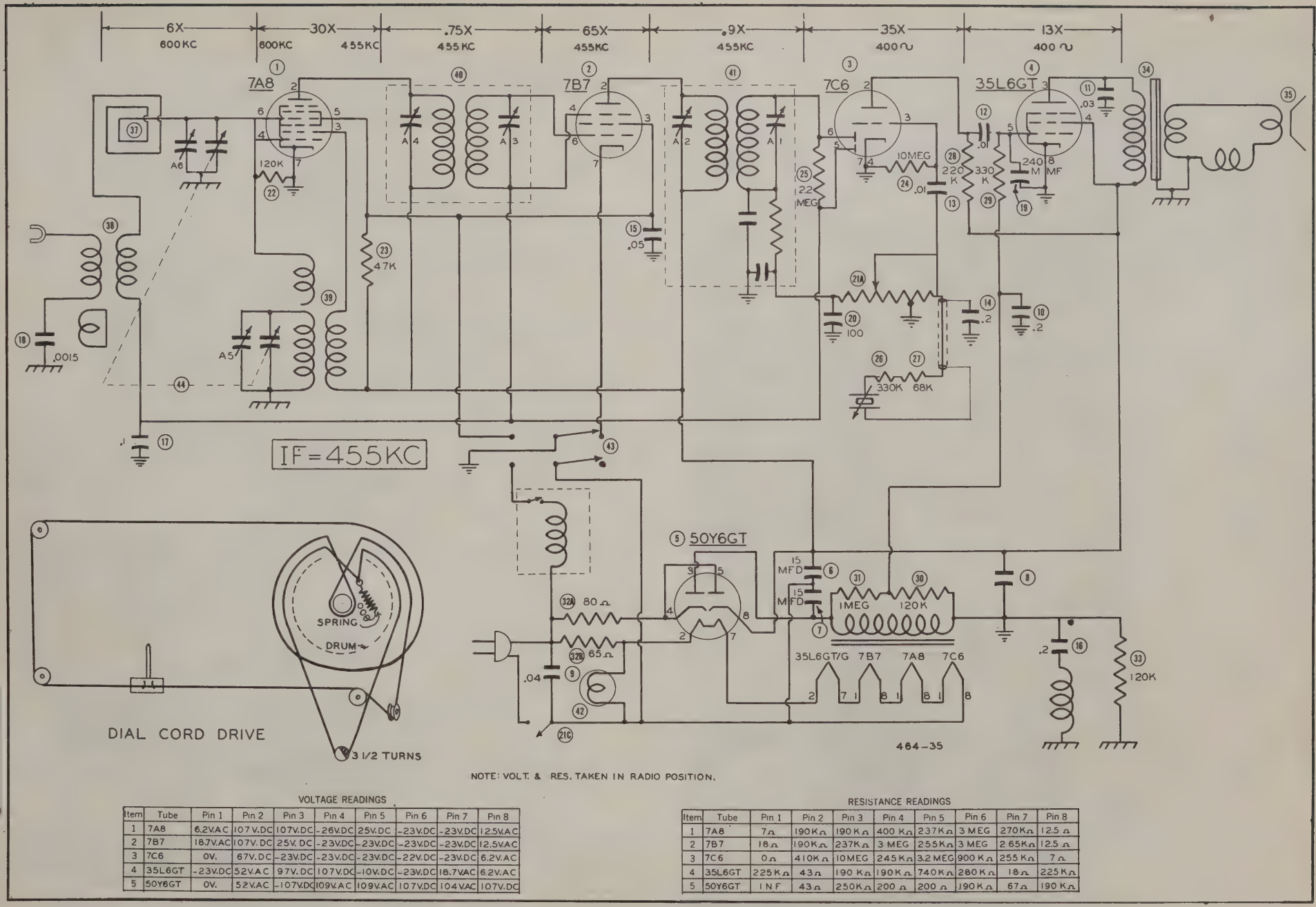
CHASSIS—BOTTOM VIEW



CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

PHILCO - MODEL 46-1201

Page 4 - On the schematic diagram, delete the line between pins 4 and 6 on 7A8 Converter, also delete line between arm and phono end of volume control.



NOTE: VOLT. & RES. TAKEN IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A8	6.2V.AC	107 V.DC	107V.DC	-26V.DC	25V.DC	-23V.DC	-23V.DC	12.5V.AC
2	7B7	18.7V.AC	107V. DC	25V. DC	-23V.DC	-23V.DC	-23V.DC	-23V.DC	12.5VAC
3	7C6	0V.	67V. DC	-23V.DC	-23V.DC	-23V.DC	-22V.DC	-23V.DC	6.2V.AC
4	35L6GT	-23V.DC	52V.AC	97V. DC	107V.DC	-10V.DC	-23V.DC	18.7VAC	6.2V.AC
5	50Y6GT	0V.	52V.AC	-107V.DC	109V.AC	109V.AC	107V.DC	104VAC	107V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A8	7Ω	190KΩ	190 KΩ	400 KΩ	237KΩ	3 MEG	270KΩ	12.5 Ω
2	7B7	18Ω	190KΩ	237KΩ	3 MEG	255KΩ	3 MEG	2.65KΩ	12.5 Ω
3	7C6	0Ω	410KΩ	10MEG	245KΩ	3.2 MEG	900 KΩ	255 KΩ	7Ω
4	35L6GT	225KΩ	43Ω	190 KΩ	190KΩ	740KΩ	280 KΩ	18Ω	225KΩ
5	50Y6GT	INF	43Ω	250KΩ	200 Ω	200 Ω	190KΩ	67Ω	190 KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PURITAN
MODEL 501, 502

PURITAN
MODEL 501, 502

PURITAN MODEL 501

TRADE NAME	Puritan Model 501 (5D15WG), 502 (5D25WG-502)
SUPPLIER	Pure Oil Co., 35 Wacker Drive, Chicago, Ill.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 1st Det.-Osc., 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC RATING -.245 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Set dial pointer and diffusion plate in position as shown on dial calibration diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7. Low side to B-.	455KC	Turn rotor to full open.	Across voice coil.	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
"	"	1620KC	"	"	A5	"
50 MMFD	High side to ext. ant. clip. Low side to B-.	1400KC	Tune in 1400 KC signal. (1400KC index line)	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PURITAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st Det.-Osc.	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	45X341	2N521	DHN-2x50-150	TA-530	PRS150-40-40	EZ5515	Filter - Red
B	50	150							" - Blue
7	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Filter
8	.2	200	B67204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
9	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	50L6 Plate Bypass
10	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
11	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
12	.05	200	B66503	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
13	.001	400	D66102	TP404	S-6-001	TC-21	484-.001	DT6D1	Ant. Coupling
14	220	500	47X468	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
15A	50	300	47X112	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Diode Filter
B	50	300		MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	" "
16	47	500	47X446	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	36X352	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

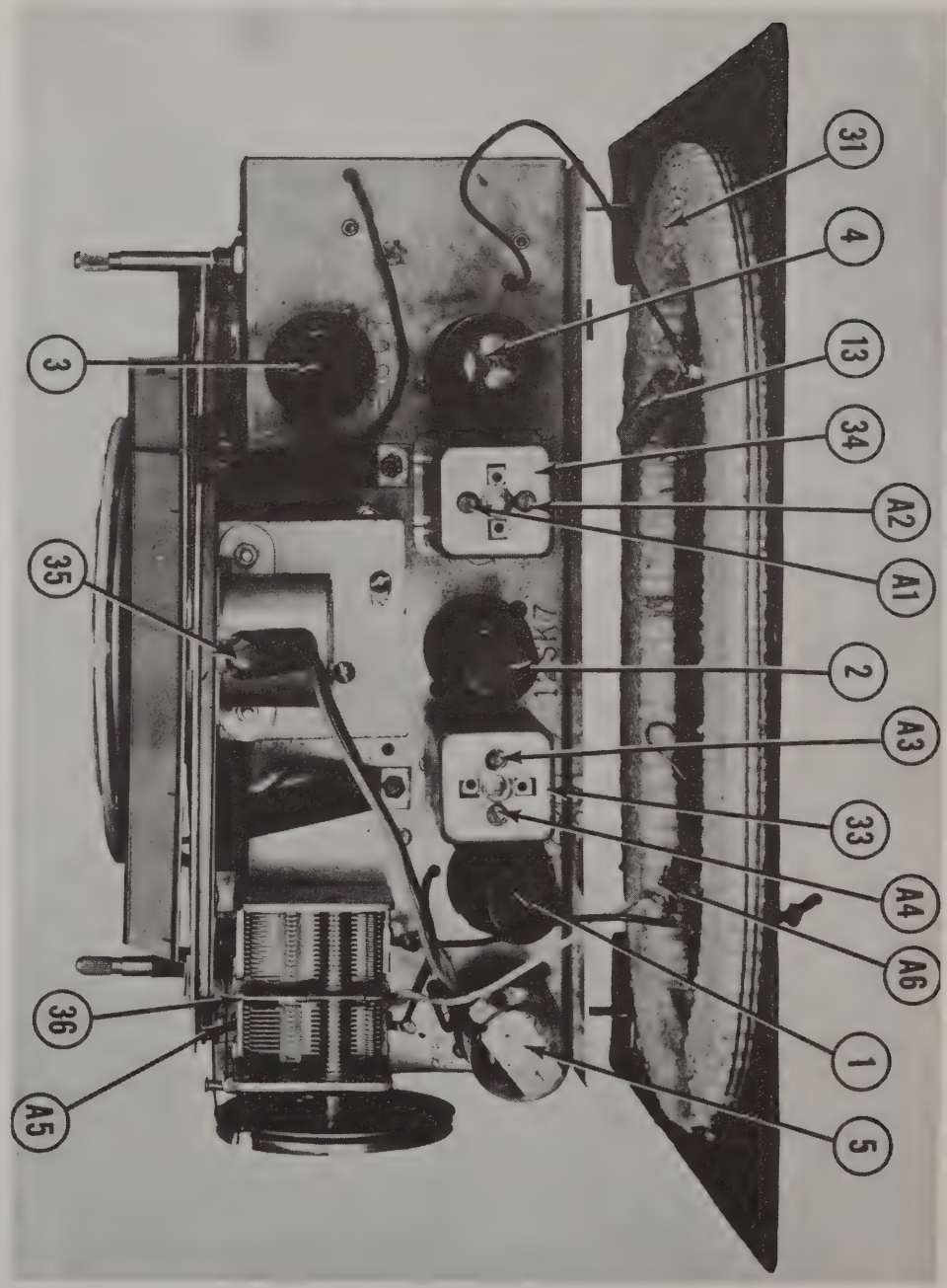
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	IRC PART No.	IDENTIFICATION CODES
18	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Osc. Grid
19	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. Diode Load
21	6.8 Meg.	½	B85685	BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
22	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
23	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½	B83151	BW-½-150	Br.-Grn.-Br. Output Cathode
25	220KΩ	½	B85224	BTS-220K	Red-Red-Yl. Line Isolating
26	27Ω	½	B84270	BW-½-27	Red-Vi.-Blk. Rectifier Ballast
27	1500Ω	1	C85152	BTA-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PURITAN PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
28	3000Ω	3.8Ω	200Ω	.65Ω	51X122	A-3876	T-13S39		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PURITAN PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
29	PM	3.8Ω	12A432	ST-107*		*Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
30	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

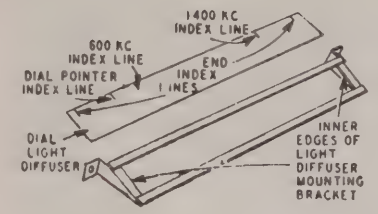
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PURITAN PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
31A	Loop Ant.	0Ω	.8Ω	26A403		Ivory Cabinet
31B	" "	0Ω	.8Ω	26A404		Walnut "
32	Osc. Coil	.5Ω	6Ω	9A1805	14-1040	
33	Input IF	21.3Ω	21.8Ω	9A1808	16-6658	
34	Output IF	23Ω	19Ω	9A1809	16-6660	

DIAL LIGHT

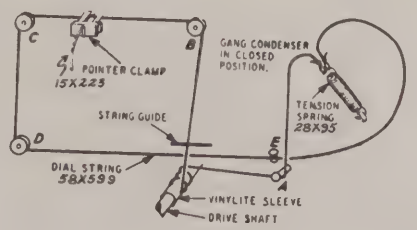
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PURITAN PART No.		INSTALLATION NOTES
35	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
36	Tuning Cap.	26A402	2 Gang Variable Cap.
A6	Trimmer	17A123	Ant. Adjust. 1-12 MMF
	Cabinet	55X255	Ivory
	"	55X267	Walnut
	Knob	10A300	Ivory
	"	10A297	Walnut
	Dial	58X599	

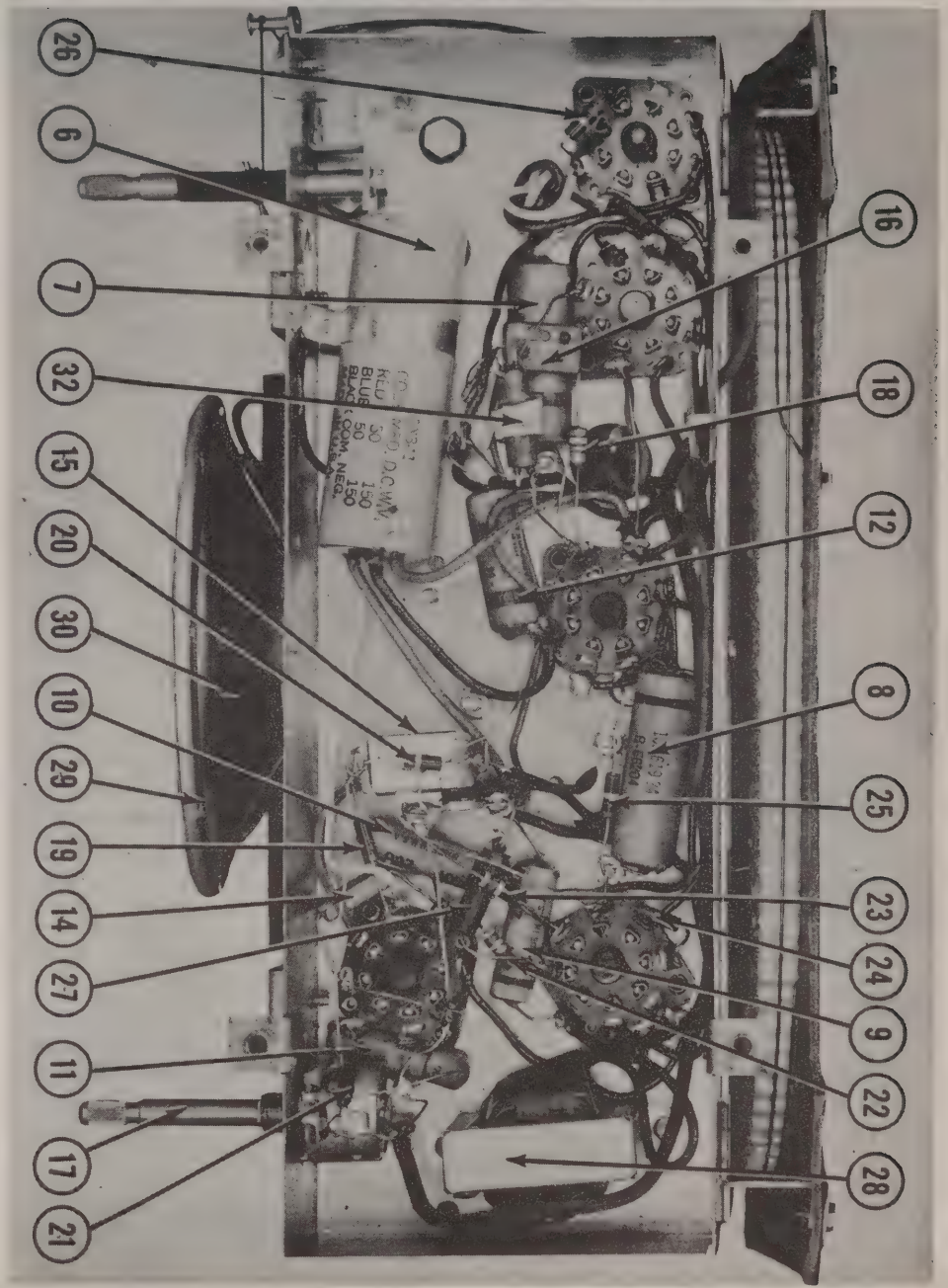

1400 KC INDEX LINE
600 KC INDEX LINE
END INDEX LINES
DIAL POINTER INDEX LINE
DIAL LIGHT DIFFUSER
INNER EDGES OF LIGHT DIFFUSER MOUNTING BRACKET

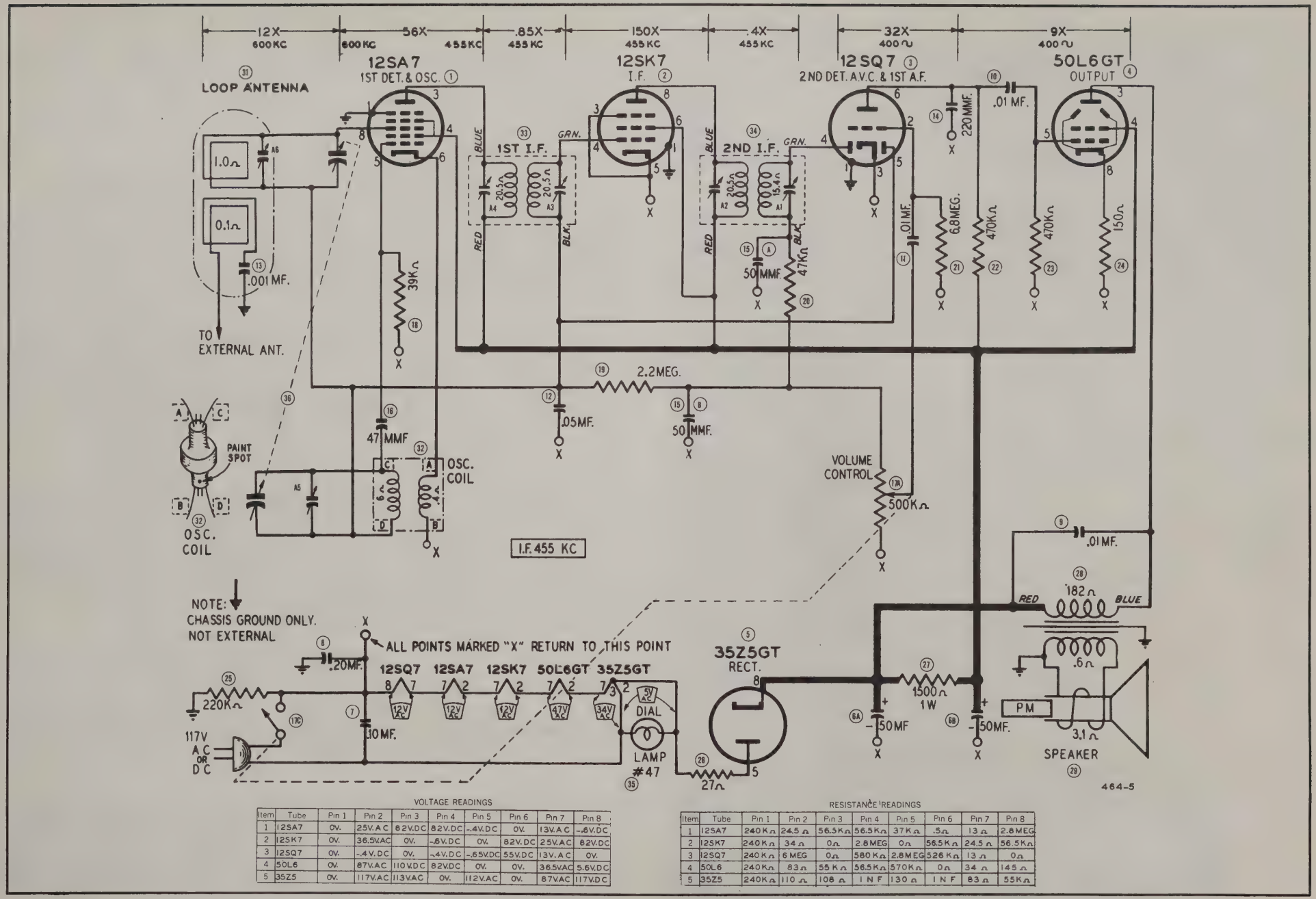
DIAL CALIBRATION



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

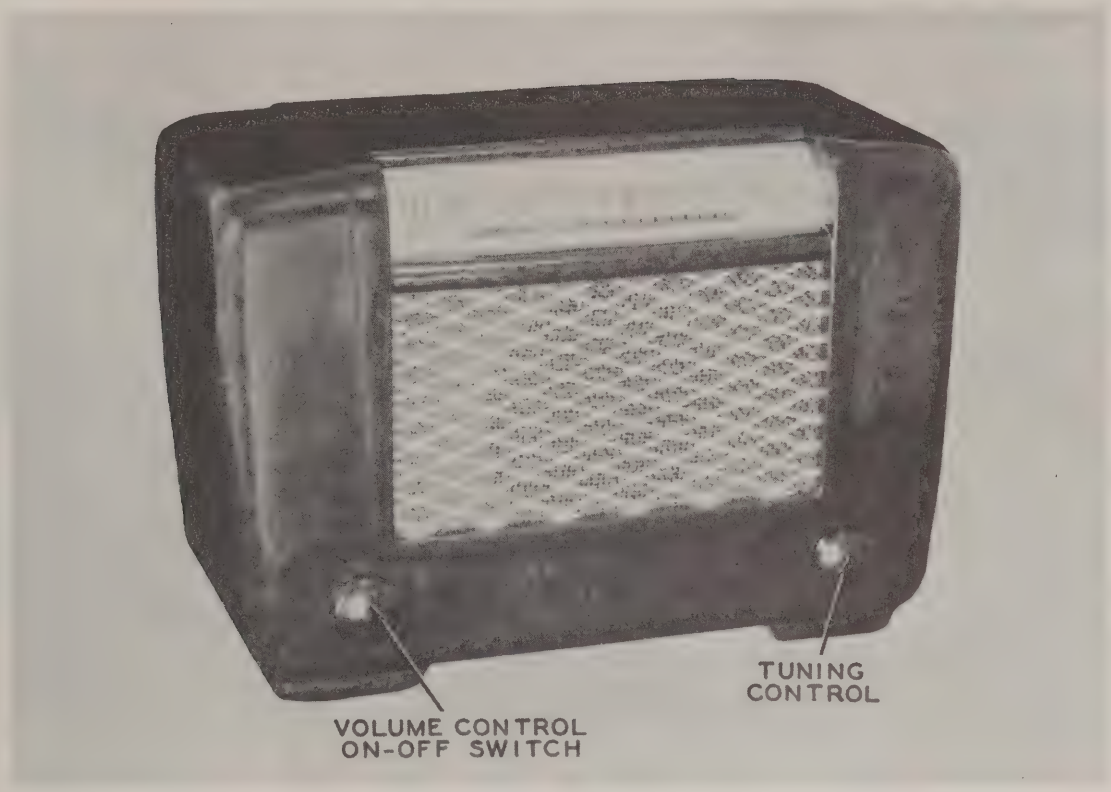
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	25V.AC	82V.DC	82V.DC	-.4V.DC	0V.	13V.AC	-.6V.DC
2	12SK7	0V.	36.5VAC	0V.	-.6V.DC	0V.	82V.DC	25V.AC	82V.DC
3	12SQ7	0V.	-.4V.DC	0V.	-.4V.DC	-.65V.DC	55V.DC	13V.AC	0V.
4	50L6	0V.	87V.AC	110V.DC	82V.DC	0V.	0V.	36.5VAC	5.6V.DC
5	35Z5	0V.	117V.AC	113V.AC	0V.	112V.AC	0V.	87V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	240K Ω	24.5 Ω	56.5K Ω	56.5K Ω	37K Ω	.5 Ω	13 Ω	2.8MEG
2	12SK7	240K Ω	34 Ω	0 Ω	2.8MEG	0 Ω	56.5K Ω	24.5 Ω	56.5K Ω
3	12SQ7	240K Ω	6 MEG	0 Ω	580K Ω	2.8MEG	526K Ω	13 Ω	0 Ω
4	50L6	240K Ω	83 Ω	55K Ω	56.5K Ω	570K Ω	0 Ω	34 Ω	145 Ω
5	35Z5	240K Ω	110 Ω	108 Ω	INF	130 Ω	INF	83 Ω	55K Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PURITAN
MODELS 501X, 502X

PURITAN
MODELS 501X, 502X

PURITAN MODEL 502X

TRADE NAME	Puritan Models 501X (Ch. 5D15WG), 502X (Ch. 5D25WG)
SUPPLIER	Pure Oil Co., 35 Wacker Dr., Chicago, Ill.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC RATING - .255 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1610KC

ALIGNMENT INSTRUCTIONS

Turn drive pulley to maximum clockwise position and set dial pointer over index line on diffuser strip as shown on dial diagram. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7 IF amp. Low side to B-.	455KC	High freq. end of dial. (Turn drive pulley full counter-clockwise)	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
"	"	1610KC	"	"	A5	"
50 MMFD	High side to ext. ant. clip on loop. Low side to chassis.	"	"	"	A6,A7.	Adjust for maximum output. A7 not used in all sets.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PURITAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	45X341	2N521	DHN-2x50-150	UT-501	PRS150-40-40	EZ5515	Filter - Red
B	50	150				UT-501			" - Blue
7	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Filter
8	.2	200	B66204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
9	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	50L6 Plate Bypass
10	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.001	400	D66102	TP404	S-6-001	TC-21	484-001	DT6D1	Ant. Coupling
14	220	500	47X468	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
15A	50		47X112	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Diode Filter
B	50			MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	" "
16	47		47X446	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	36X352	MK401	D13-133	M-60-Z	Volume Control
b	Shaft		Not Req.	Not Req	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	SW-A	41	SW-A	" " " " "

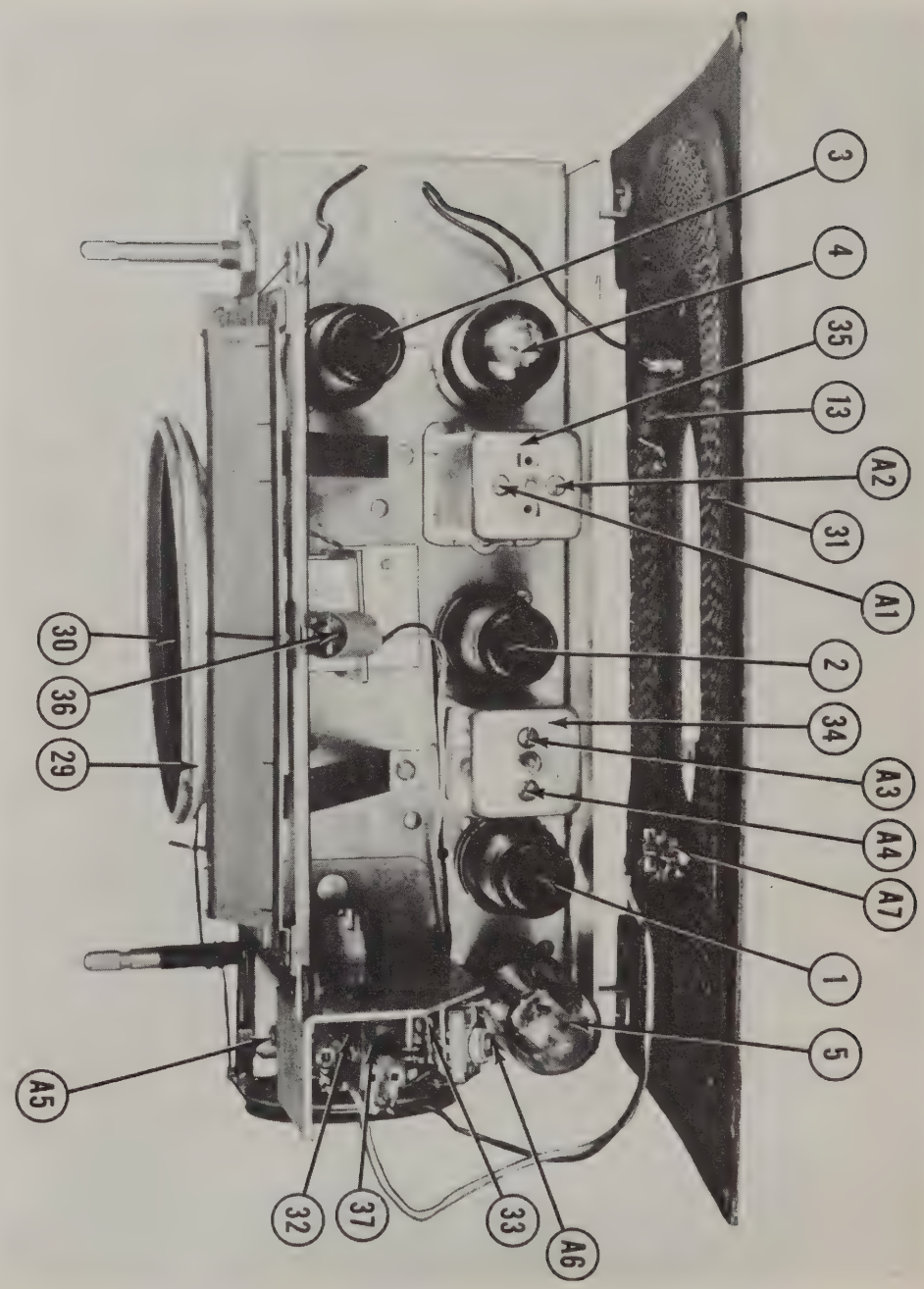
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	IRC PART No.	IDENTIFICATION CODES
18	39KΩ	½		BTS-39K	Or.-White-Or. Osc. Grid
19	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	47KΩ	½	B85473	BTS-47KΩ	Yl.-Vi.-Or. Diode Load
21	6.8 Meg.	½	B85685	BTS-6.8 Meg	Blue-Gray-Grn. 1st AF Grid
22	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
23	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½	B83151	BW-½-150	Br.-Grn.-Br. Output Cathode
25	220KΩ	½	B85224	BTS-220K	Red-Red-Yl. Line Isolating
26	27Ω	½	B84270	BW-½-27	Red-Vi.-Blk. Rectifier Ballast
27	1500Ω	1	C85152	BTA-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PURITAN PART No.	STANCOR PART No.	THORDAR'N PART No.	INSTALLATION NOTES
28	3000Ω	3.8Ω	200Ω	.65Ω	51X122	A-3876	T-13S39	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PURITAN PART No.	JENSEN PART No.		INSTALLATION NOTES
29	FIELD PM	VC IMP. 3.8Ω	12A432	ST-1071		†Fabricate new mounting bracket.
30	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

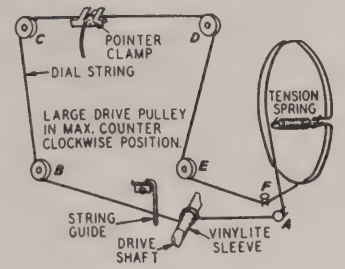
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PURITAN PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
31A	Loop Ant.	.1Ω	1Ω	9A1834		For Walnut Cabinet
31B	" "	.1Ω	1Ω	9A1835		" Ivory "
32	Ant. Coil	10Ω	1.5Ω			Items 32,33 ganged together and slug tuned
33	Osc. Coil	1Ω	6Ω			
34	Input IF	21.3Ω	21.8Ω	9A1808	16-6658	
35	Output IF	23Ω	19Ω	9A1809	16-6660	

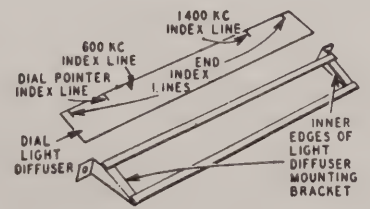
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PURITAN PART No.		INSTALLATION NOTES
36	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
37	Tuning Assby.	20A96	Complete with coils & trimmers, etc.
A5	Trimmer	17A239	Osc. Adjustment 40-370 MMF
A6	"	17A238	Ant. " 4-70 MMF
	Knob	10A300	Ivory
	"	10A297	Walnut
	Cabinet	55X255	Ivory
	"	55X287	Walnut
	Dial	58X638	For Ivory Cabinet
	"	58X640	" Walnut "

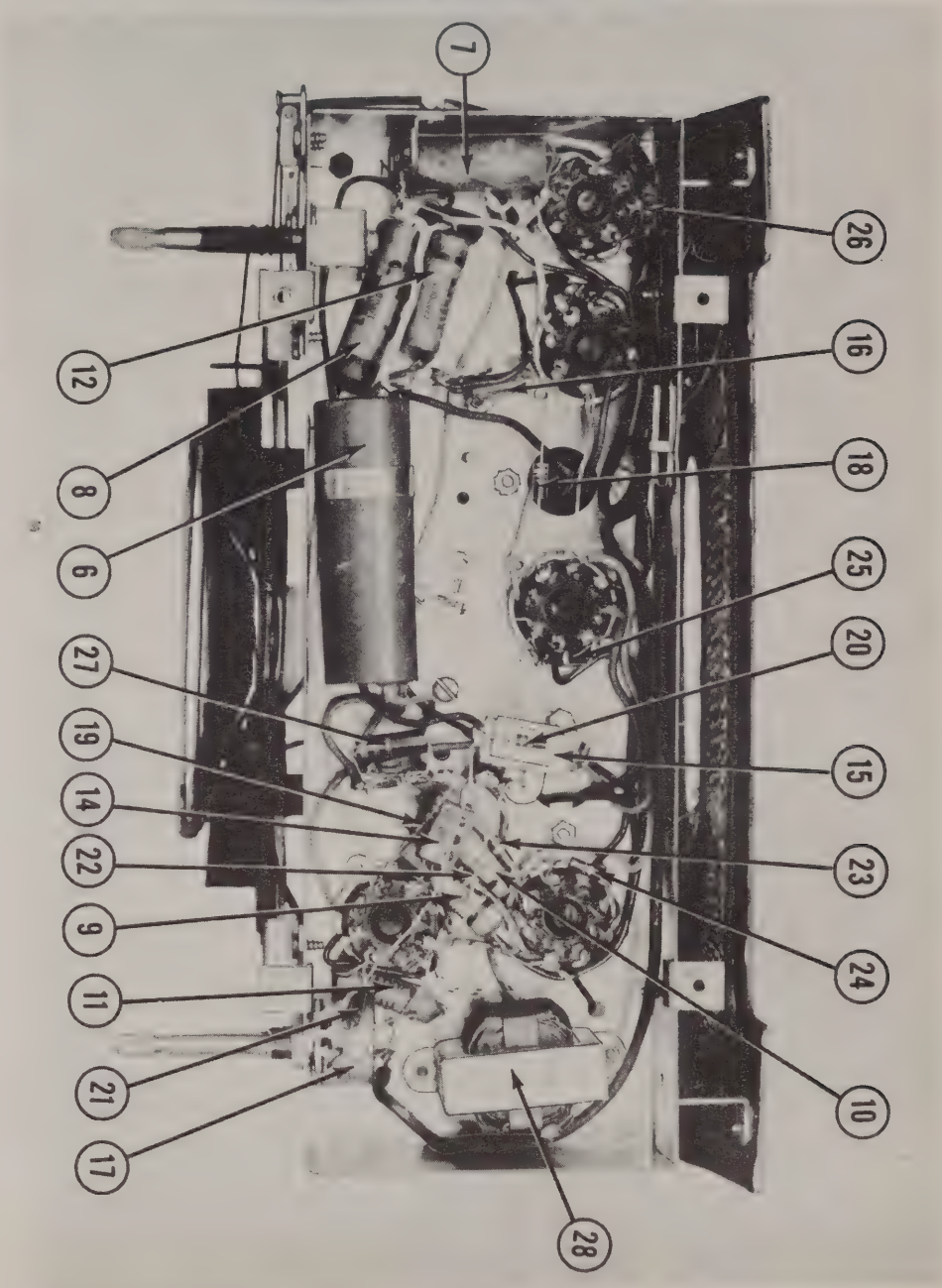


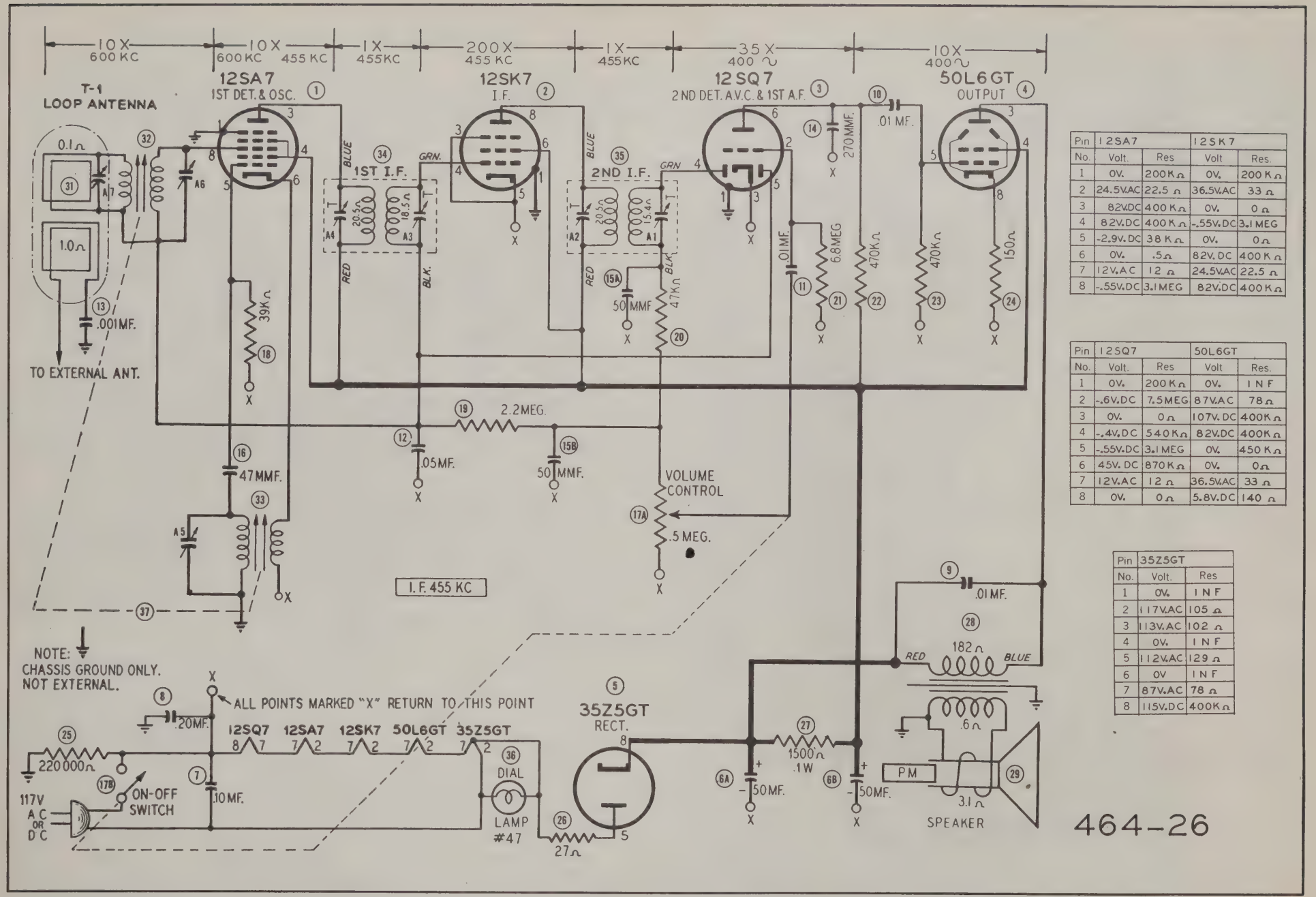

1400 KC INDEX LINE
600 KC INDEX LINE
END INDEX LINES
DIAL POINTER INDEX LINE
DIAL LIGHT DIFFUSER
INNER EDGES OF LIGHT DIFFUSER MOUNTING BRACKET

DRIVE CORD REPLACEMENT

Turn the large drive pulley to the maximum counterclockwise position. Use a new 53 inch drive cord, tie one end to the tension spring and fasten the other end of the spring to the drive pulley. Install the cord as shown in the illustration. Wind two turns clockwise around the tuning shaft with the turns progressing away from the chassis. After string is installed, stretch the tension spring and tie free end of cord to spring. Cut off excess string.

CHASSIS—BOTTOM VIEW





Pin No.	12SA7 Volt.	12SA7 Res	12SK7 Volt	12SK7 Res.
1	0V.	200KΩ	0V.	200KΩ
2	24.5V.AC	22.5Ω	36.5V.AC	33Ω
3	82V.DC	400KΩ	0V.	0Ω
4	82V.DC	400KΩ	-.55V.DC	3.1MEG
5	-2.9V.DC	38KΩ	0V.	0Ω
6	0V.	.5Ω	82V.DC	400KΩ
7	12V.AC	12Ω	24.5V.AC	22.5Ω
8	-.55V.DC	3.1MEG	82V.DC	400KΩ

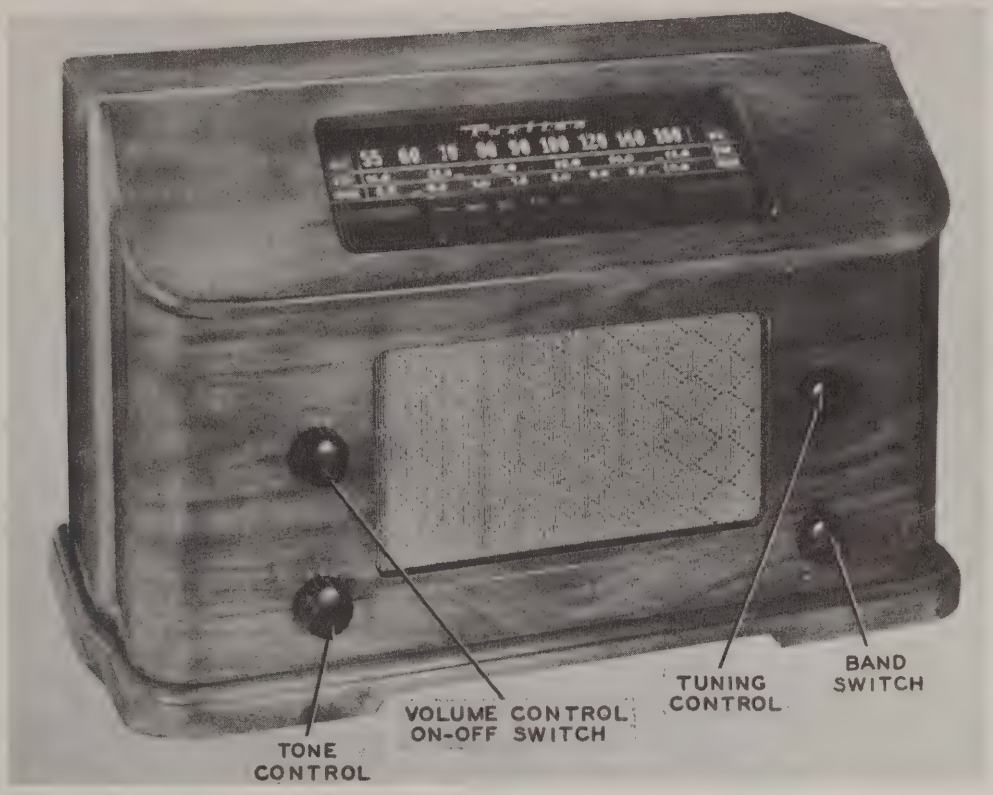
Pin No.	12SQ7 Volt.	12SQ7 Res	50L6GT Volt	50L6GT Res.
1	0V.	200KΩ	0V.	INF
2	-.6V.DC	7.5MEG	87V.AC	78Ω
3	0V.	0Ω	107V.DC	400KΩ
4	-.4V.DC	540KΩ	82V.DC	400KΩ
5	-.55V.DC	3.1MEG	0V.	450KΩ
6	45V.DC	870KΩ	0V.	0Ω
7	12V.AC	12Ω	36.5V.AC	33Ω
8	0V.	0Ω	5.8V.DC	140Ω

Pin No.	35Z5GT Volt.	35Z5GT Res
1	0V.	INF
2	117V.AC	105Ω
3	113V.AC	102Ω
4	0V.	INF
5	112V.AC	129Ω
6	0V	INF
7	87V.AC	78Ω
8	115V.DC	400KΩ

464-26

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PURITAN
MODEL 508

PURITAN
MODEL 508

PURITAN MODEL 508

TRADE NAME Puritan Model 508 (Code 7A35SW)
SUPPLIER Pure Oil Co., 35 Wacker Drive, Chicago, Ill.
TYPE SET AC 3 Band Superheterodyne - Self Contained Loop Ant. - 5 Button Automatic Tuning
TUBES (SEVEN) Types, 6SK7 RF Amp., 6SA7 1st Det.-Osc., 6SK7 IF Amp., 6SQ7 2nd Det.-AVC, 6SJ7 1st AF Amp., 6K6GT/G Power Output, 5Y3GT/G Rectifier.

POWER SUPPLY 105-125 Volts AC RATING .485Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1725KC **SHORT WAVE** 11.4-15.5MC and 5.9-10MC

ALIGNMENT INSTRUCTIONS

Adjust dial pointer over last mark to left of "55" with rotors in full mesh. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Loop and chassis in same relative position as they will be with chassis in cabinet.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (signal grid) of 6SA7. Low side to chassis.	455KC	BC (counter-clockwise)	Any point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output Repeat adjustments.
.003 MFD	High side to ext. ant. clip on loop frame. Low side to chassis.	1500KC	"	1500KC	"	A5	Adjust for maximum output
"	"	"	"	"	"	A6,A7,	" " " "
"	"	600KC	"	Tune to 600 KC signal.	"	A8	Rock dial and adjust for maximum output. Repeat adjustments A5, A6 and A7 at 1500KC then check A8 at 600KC.
400Ω res	"	15MC	SW	15MC	"	A9	Adjust for maximum output Check for proper peak by tuning in image at 14.1MC
"	"	"	"	"	"	A10	Rock dial slightly and adjust for maximum output
"	"	9.5MC	31M (clock-wise)	9.5MC	"	A11	Adjust for maximum output Check for proper peak by tuning in image at 8.6MC
"	"	"	"	"	"	A12	Rock dial slightly and adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PURITAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amplifier	6SK7	6SK7	8N	
2	1st Det.-Osc.	6SA7	6SA7	8R	
3	IF Amplifier	6SK7	6SK7	8N	
4	2nd Det.-AVC	6SQ7	6SQ7	8Q	
5	1st. AF Amp.	6SJ7	6SJ7	8N	
6	Power Output	6K6GT/G	6K6GT/G	7S	
7	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

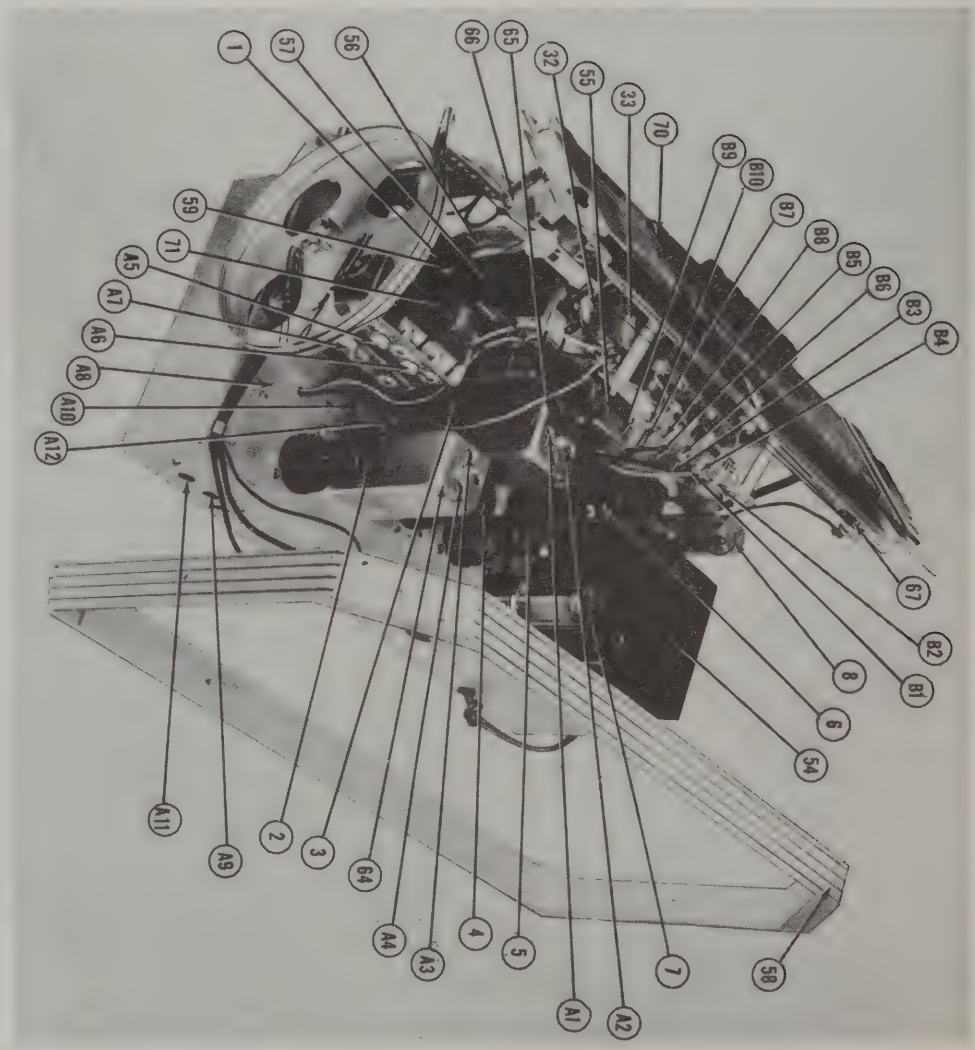
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8(A)	20	400	502207	FP339	DY-2x20-400/20-25	EL-312	AF22J4A	UP6CJ13	■ Filter
(B)	10	400							▲ "
(C)	20	25							
9	.05	600	502154	TP415	S-6-05	TC-15	684-.05	DT6S5	Tone Compensation
10	.004	600	502150	TP407	S-6-004	TC-24	684-.004	DT6D4	6K6 Plate Bypass
11	.02	400	502152	TP423	S-4-02	TC-12	484-.02	DT4S2	Audio Coupling
12	.1	400	502410	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Plate Decoup.
13	.25	400	502405	TP430	S-4-25	TC-2	484-.25	DT4P25	Negative Feedback
14	.004	600	502150	TP407	S-6-004	TC-24	684-.004	DT6D4	Audio Coupling
15	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Bypass Pwr. Supp.
16	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	IF Screen Bypass
17	.01	400	502151	TP421	S-4-01	TC-11	484-.01	DT4S1	Osc. Feedback SW
18	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Screen Bypass
19	.1	200	502155	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
20	.05	200	502153	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter*
21	110	500	502160	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
22	260	500	502271	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Diode
23	68	500	502167	MC230		MS-47	1469-.00007	5W5Q7	Osc. Coupling SW
24	430	500	502163	MCB243	MOS.5-34	MS-34	1469-.0004	5R5T4	RF Coupling SW
25	39	500	502182	MC223	M0.5-44	1FM-44	1468-.00004	5W5Q4	Fixed Trimmer
26	2	500	502411						RF Coupling SW
27	50	500	502159	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
28	10	500	502295	MC215	M0.5-41	MS-41	1468-.000001		RF Trans. Fixed Tuned
29	39	500	502182	MC223	M0.5-44	1FM-44	1468-.00004	5W5Q4	Fixed Trimmer
30	82	500	502166						Fixed Padder SW
31	670	500	502164						" " "
32	270	500	502161	MCB240	MOS.5-325	1FM-325	1469-.00025	5R5T25	Fixed Tuning Osc. P.B.
33	1000	500	502165	MC255	M0.3-21	1FM-21	1468-.001	1W5D1	Screen Bypass P.B.

*Used in Some Models Only.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
34(A)	500KΩ	1	502117	MK401	D13-133	AM-60-Z	Volume Control.
(B)	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 33A per instructions
(C)	Switch		" "	M26	41	SW-A	" " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PURITAN PART No.	IRC PART No.	
35	4.7 Meg.	½	502468	BTS-4.7 Meg	Yl.-Vl.-Grn. RF Grid
36	560Ω	½	502127	BTS-560	Grn.-Blue-Br. RF Cathode
37	100KΩ	½	502132	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
38	22KΩ	½	502130	BTS-22K	Red-Red-Or. Osc. Grid
39	33KΩ	1	502466	BTA-33K	Or.-Or.-Or. Osc. Screen Dropping
40	220Ω	½	502125	BW-½-220	Red-Red-Br. IF Cathode
41	2.2 Meg.	½	502135	BTS-2.2 Meg	Red-Red-Grn. AVC Network
42	68KΩ	½	502467	BTS-68K	Blue-Gray-Or. IF Screen Dropping
43	47KΩ	½	502131	BTS-47K	Yl.-Vl.-Or. Diode Load
44	4.7 Meg.	½	502468	BTS-4.7 Meg	Yl.-Vl.-Grn. 1st AF Grid
45	2200Ω	½	502128	BTS-2200	Red-Red-Red 1st AF Cathode
46	220KΩ	½	502133	BTS-220K	Red-Red-Yl. 1st AF Plate Load
47	100KΩ	½	502132	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Filter
48	2.2 Meg.	½	502135	BTS-2.2 Meg	Red-Red-Grn. 1st AF Screen Dropping
49	470KΩ	½	502134	BTS-470K	Yl.-Vl.-Yl. Output Grid
50	330Ω	2	502137	BW-2-330	Or.-Or.-Br. Fixed Bias
51	4700Ω	½	502291	BTS-4700	Yl.-Vl.-Red Tone Compensation
52	560Ω	½	502127	BTS-560	Grn.-Blue-Br. " "
53	470KΩ	½	502134	BTS-470K	Yl.-Vl.-Yl. AVC Network*

*Used in Some Models Only

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PURITAN PART No.	STANCOR PART No.	THORDARSON PART No.	
54	117V. @ .485A	300V.CT @ .058A	5V. @ 1.82A	6.2V @ 2.02A	502174	P-6120	T-13R20	Replacement Parts P-6120 and T-13R20 require new mounting holes.

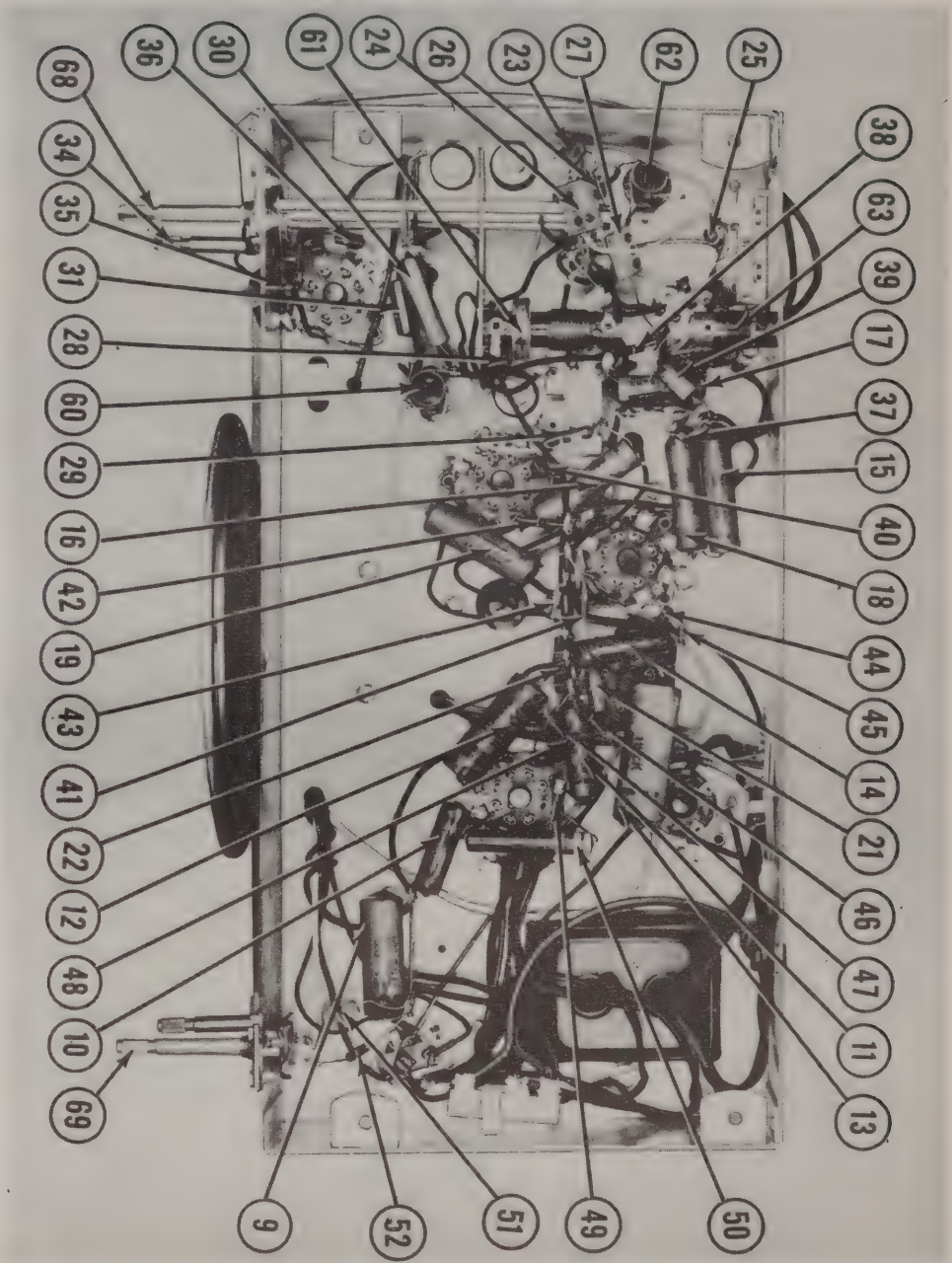
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PURITAN PART No.	STANCOR PART No.	THORDARSON PART No.		
	PRI.	SEC.	PRI.	SEC.					
55	8433Ω	3.6Ω	665Ω	.6Ω	504124	A-3878	T-14884		Used with speaker D-504205
55A					504208				Used with speaker R-504205
55B					504206				Used with speaker M-504205

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	PURITAN PART No.	JENSEN PART No.		
56	1000Ω	3.5Ω	D504205	ST-5671†		†Improvise mounting bracket.
	CONE DIA.	VC DIA.				
57	6-3/16"	9/16"	504125	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		
56(A)			M-504205			
57(A)			504207			
56(B)			R-504205			
57(B)			504209			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PURITAN PART No.	MEISSNER PART No.	
58	Loop Ant.	0Ω	0Ω	502186		
59	BC Ant. Coil	.5Ω	3Ω	502112	14-1027	
60	SW Ant. Coil	.5Ω	0Ω	502110	14-1044	
61	BC RF Coil	11Ω	0Ω	502113	14-1027	
62	BC Osc. Coil		5Ω	502114		Adjustable Iron Core Slug
63	SW Osc. Coil	.5Ω	0Ω	502111	14-1046	
64	Input IF	20Ω	20Ω	502102	16-6658	
65	Output IF	19Ω	19Ω	502103	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PURITAN PART No.		
66	Bayonet	6-8	0.25	Blue	110629		#44
67	"	"	"	"	"		"

MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
68	Band Switch	502119	
69	Tone Switch	502118	
70	Switch	502120	Push Button Auto. Tuning
71	Tuning Cap.	502122	3 Gang Variable Cap.
A9	Trimmer	502108	SW Oscillator 2-15MMF
A11	"	Part of 502108	31 Meter Oscillator 2-15 MMF
A10	"	502109	SW Antenna 2-15 MMF
A12	"	Part of 502109	31 Meter Antenna 10-40 MMF
	Dial Scale	502215	Glass
	Escutcheon	502699	Push Button
	Knob	502704	Volume & Tuning
	"	502705	Tone & Band Switch
	Push Button	501495	Automatic Tuning

PUSHBUTTON ADJUSTMENTS

The pushbuttons from left to right (facing front of receiver) cover the following frequency ranges: 540 to 1000KC, 650 to 1300KC, 650 to 1300KC, 975 to 1600KC, 975 to 1600KC. To adjust the pushbuttons to desired stations, proceed as follows:

1 - Set band switch on "AM" position and turn set on to allow for warm-up period.

2 - Select a station which falls in the frequency range of the pushbutton on the extreme left and adjustments B1, B2 (540-1000KC).

3 - Push in "Manual" button and tune in the station to identify program.

4 - Push in button on extreme left and adjust B1 to tune in station (adjust for deepest tone). Adjust B2 for maximum volume of station.

5 - Proceed in the same manner for setting up the remaining push-buttons, always selecting a station within the frequency range of the pushbutton and its associated adjustments. Adjust B3, B5, B7, and B9 to tune in station. Adjust B4, B6, B8 and B10 for maximum volume.

VOLTAGE & RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	6.25V.AC	0V.	-.02V.DC	3.4V.DC	87V.DC	0V.	237V.DC
2	6SA7	0V.	0V.	237V.DC	52V.DC	-1.75V.DC	0V.	6.25VAC	-.06V.DC
3	6SK7	0V.	0V.	0V.	-.07V.DC	2.2V.DC	85V.DC	6.25VAC	237V.DC
4	6SQ7	0V.	0V.	0V.	-.35V.DC	-.35V.DC	0V.	6.25V.AC	0V.
5	6SJ7	0V.	0V.	1.15V.DC	0V.	115V.DC	22V.DC	6.25V.AC	115V.DC
6	6K6GT	0V.	0V.	220V.DC	237V.DC	-7.2V.DC	-18V.DC	6.25V.AC	0V.
7	5Y3GT	0V.	295V.DC	0V.	310V.AC	0V.	310V.AC	0V.	295V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	.25Ω	0Ω	1.7MEG	540Ω	3.7MEG	0Ω	3.6MEG
2	6SA7	0Ω	0Ω	3.6MEG	3.65MEG	21.5KΩ	.5Ω	.25Ω	1.5MEG
3	6SK7	0Ω	0Ω	0Ω	1.6MEG	205Ω	3.7MEG	.25Ω	3.6MEG
4	6SQ7	0Ω	0Ω	0Ω	540KΩ	540KΩ	0Ω	.25Ω	0Ω
5	6SJ7	0Ω	0Ω	2.2KΩ	3.75MEG	22KΩ	5.8MEG	.25Ω	3.9MEG
6	6K6GT	0Ω	0Ω	3.6MEG	3.6MEG	420KΩ	318Ω	.25Ω	0Ω
7	5Y3GT	INF	36MEG	INF	530Ω	INF	525Ω	.5Ω	3.6MEG

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.

2 - Socket connections are shown as bottom views.

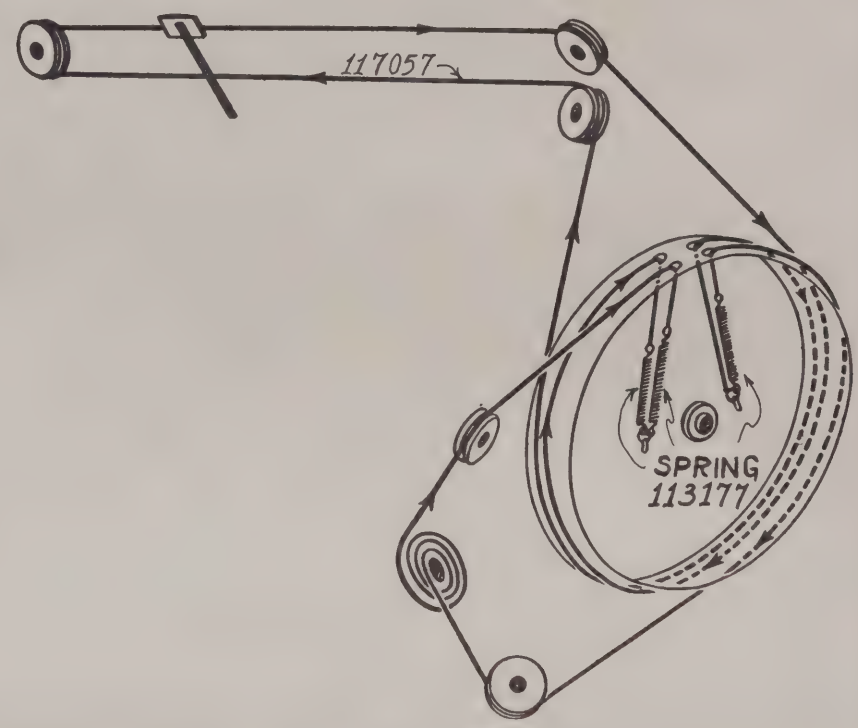
3 - Measured values are from socket pin to common negative.

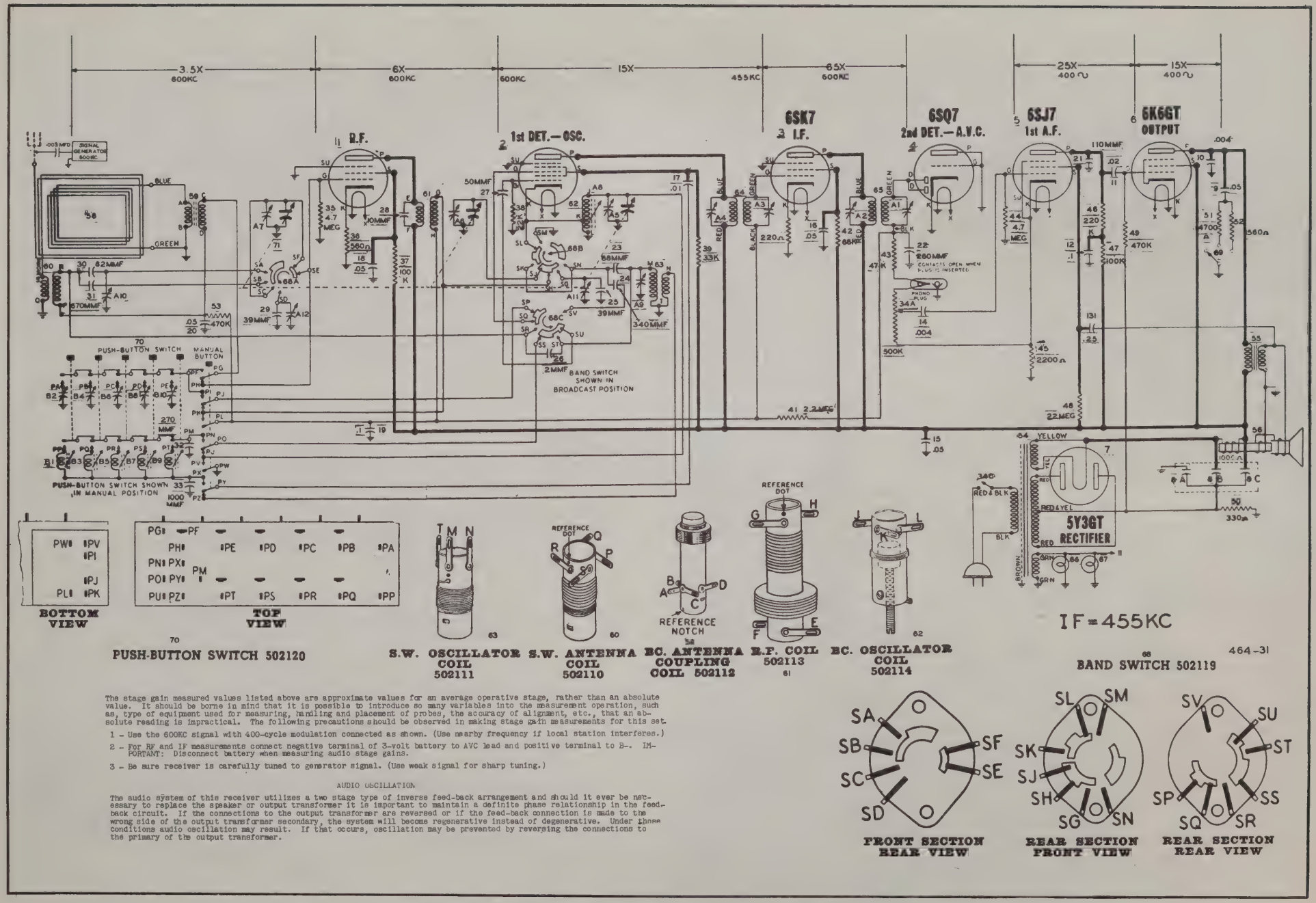
4 - Line voltage maintained at 117 volts for voltage readings.

5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

6 - Volume control at maximum, no signal applied for voltage measurements.

DIAL CORD DRIVE





The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements for this set.

1 – Use the 600KC signal with 400-cycle modulation connected as shown. (Use nearby frequency if local station interferes.)

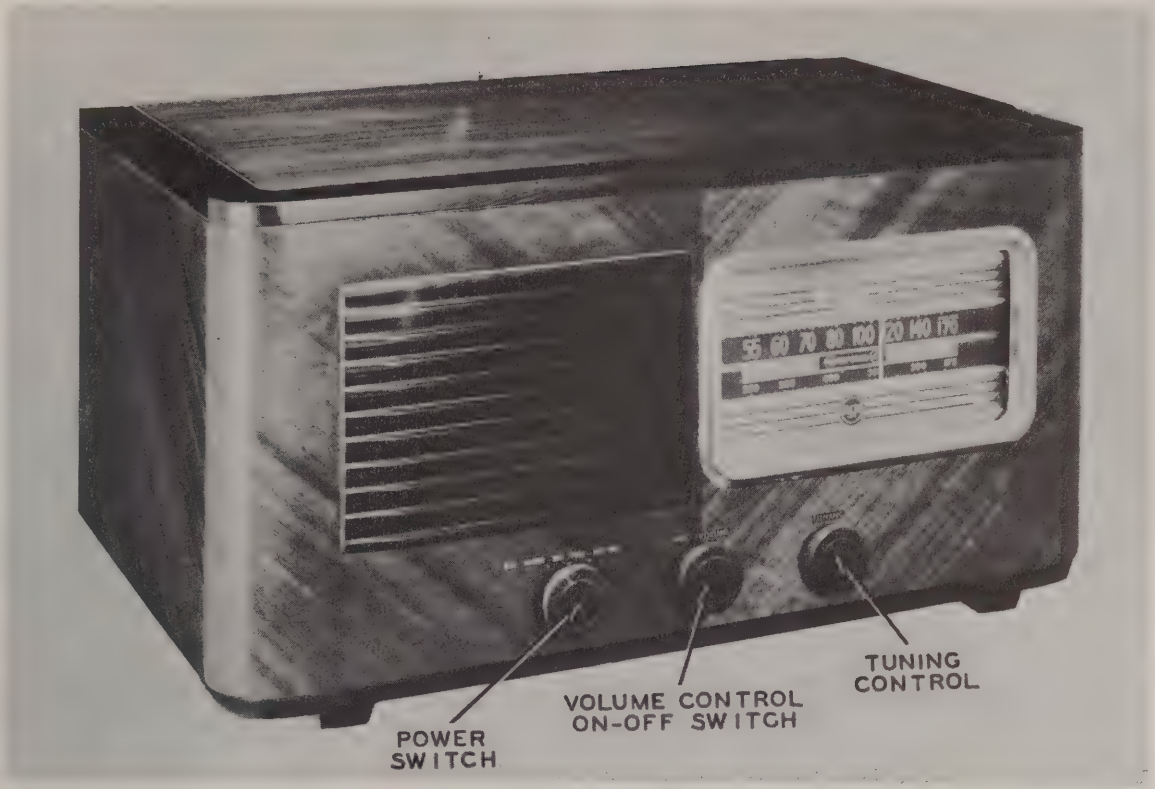
2 – For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT: Disconnect battery when measuring audio stage gains.

3 – Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)

AUDIO OSCILLATION

The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and should it ever be necessary to replace the speaker or output transformer it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feed-back connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under those conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the primary of the output transformer.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



RCA VICTOR MODEL 55F

TRADE NAME	RCA Victor Model 55F (RC-1004E)
MANUFACTURER	Radio Corporation of America, RCA Victor Div., Camden, N.J.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1N5GT RF Amp., 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	90 Volts "B" Battery & 1½ Volt "A" Battery - RCA VS022 or equivalent
TUNING RANGE—BROADCAST	540-1720KC RATING - 13MA @ 90 Volts DC plus .310 Amps. @ 1.5 Volts DC

ALIGNMENT INSTRUCTIONS

Set dial pointer to left-hand end dial calibration mark with rotor in full mesh. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to top cap. (grid) 1N5 IF Amp. Low side to chassis.	455KC	Quiet point between 550 and 750KC.	Across voice coil	A1,A2.	Adjust for maximum output.
"	High side to top cap. (grid) 1A7. Low side to chassis.	"	"	"	A3,A4.	" " " "
200 MMFD	High side to ant. terminal. Low side to chassis.	1720KC	Tuning gang rotors full open.	"	A5	" " " "
"	"	1300KC	Tune in 1300 KC signal.	"	A6	" " " "
"	"	455KC	Quiet point between 550 and 750KC.	"	A7	Adjust for minimum output on strong 455KC signal.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
1	RF Amp.	1N5GT	1N5GT	5Y	
2	Converter	1A7GT	1A7GT	7Z	
3	IF Amp.	1N5GT	1N5GT	5Y	
4	Det.-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6	10	10	36718	TC22	M-10-25	TA-10	PRS25-10	BR102A	RF Bypass Filament
7	10	10	36718	TC22	M-10-25	TA-10	PRS25-10	BR102A	" " "
8	25	90	38705	TC47	M-30-150	UT-301	PRS150-30	BR3015	" " Pwr. Supp.
9	.005	600	70627	TP408	S-6-005	TC-25	684-005	DT6D5	3Q5 Plate Bypass
10	.005	600	70627	TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
11	.0018	600	70712	TP405	S-6-002	TC-22	684-002	DT6D2	" "
12	.05	200	70615	TP426	S-4-05	TC-15	484-05	DT4S5	1A7 Screen Bypass
13	.1	400	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
14	.005	600	70627	TP408	S-6-005	TC-25	684-005	DT6D5	Ant. Coupling
15	330	500	39640	MC241	M0.5-33	1FM-33	1468-00003	5W5T3	Audio Plate Bypass
16	10	500	39304	MC215	M0.5-41	1FM-41	1468-00001	5W5Q1	Fixed Trimmer -Note 1
17	120	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

Note 1 - Not used in all models.

CONTROLS

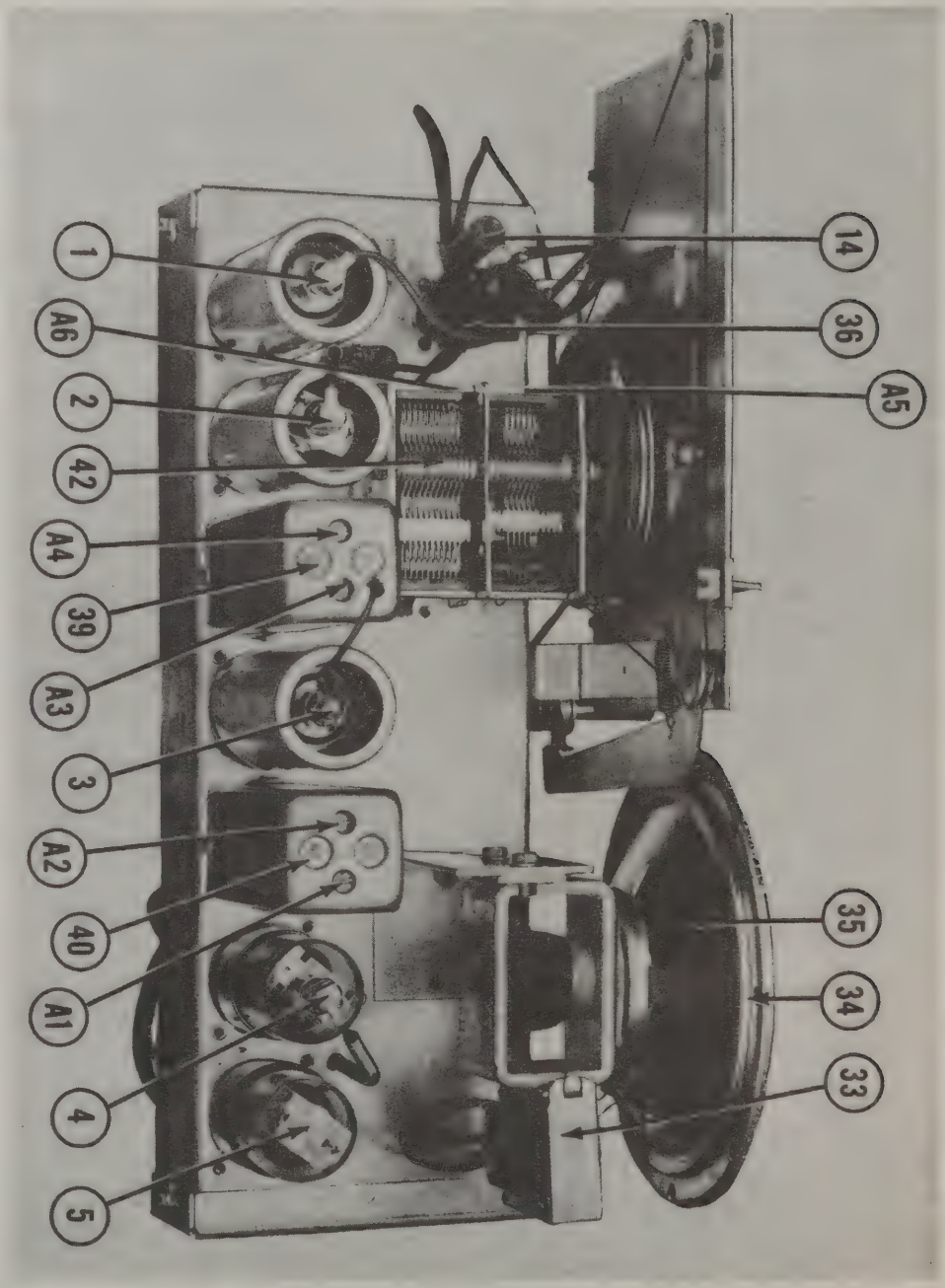
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	½ Meg.	1	36080	MR53	D13-137	M-63-Z	Volume Control - See Note 1
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

Note 1 - Use original bushing to actuate on-off indicator.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
19	3.3 Meg.	½	12928	BTS-3.3 Meg.	Or.-Or.-Grn. RF Grid
20	5600Ω	½	30734	BTS-5600	Grn.-Blue-Red RF Plate Load
21	3.3 Meg.	½	12928	BTS-3.3 Meg.	Or.-Or.-Grn. Converter Grid
22	220KΩ	½	14583	BTS-220K	Red-Red-Yl. Osc. Grid
23	68KΩ	½	14138	BTS-68K	Blue-Gray-Or. Mixer Screen Dropping
24	10 Meg.	½	30992	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
25	47KΩ	½	30787	BTS-47K	Yl.-Vi.-Or. Diode Load
26	10 Meg.	½	30992	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
27	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
28	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
29	390Ω	½	30498	BW-½-390	Or.-White-Br. Bias
30	680Ω	½	12262	BTS-680	Blue-Gray-Br. Bias
31	390Ω	½	30498	BW-½-390	Or.-White-Br. Filament (AC-DC)
32	22Ω	1	39930	BW-1-22	Red-Red-Blk. Filament (AC-DC)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	STANCOR PART No.	THORDAR'N PART No.	INSTALLATION NOTES
33A	12000Ω	3.8Ω	450Ω	.45Ω	70993‡	A-3878†	T-14S84†	†Bend mounting tabs down, file out slots and mount on original bracket. ‡Used with speaker assembly 92515-1F.
33B					70992			Used with speaker assembly 92515-1P.
33C					70991			Used with speaker assembly 92515-1K.

SPEAKER

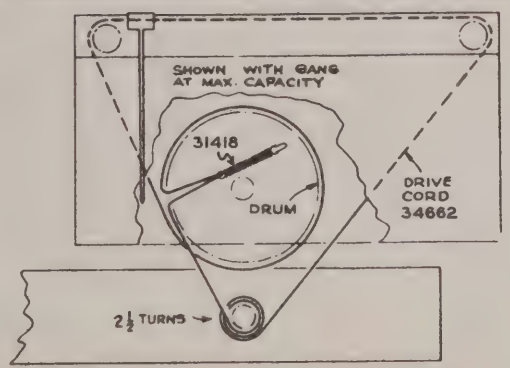
ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.		INSTALLATION NOTES
34	FIELD PM	VC IMP. 3.8Ω	70381	ST-107*		*Fabricate new mounting bracket
35	CONE DIA. 4‡"	VC DIA. 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	MEISSNER PART No.	INSTALLATION NOTES
36	Ant. Coil	37Ω	4.4Ω	38344	14-1026	
37A	Peaking Coil	6.8Ω		70378		Items 37A, 37B on same form
37B	Wave Trap	28Ω		70378		
38	Osc. Coil	2.8Ω	7Ω	38345	14-1040	Add 50 MMFD Cap. from grid to high side tuning cap.
39	Input IF	16Ω	15.5Ω	70379	16-6858	
40	Output IF	16.5Ω	16Ω	70380	16-6670††	††Remove resistor(25) and wire in per instructions.

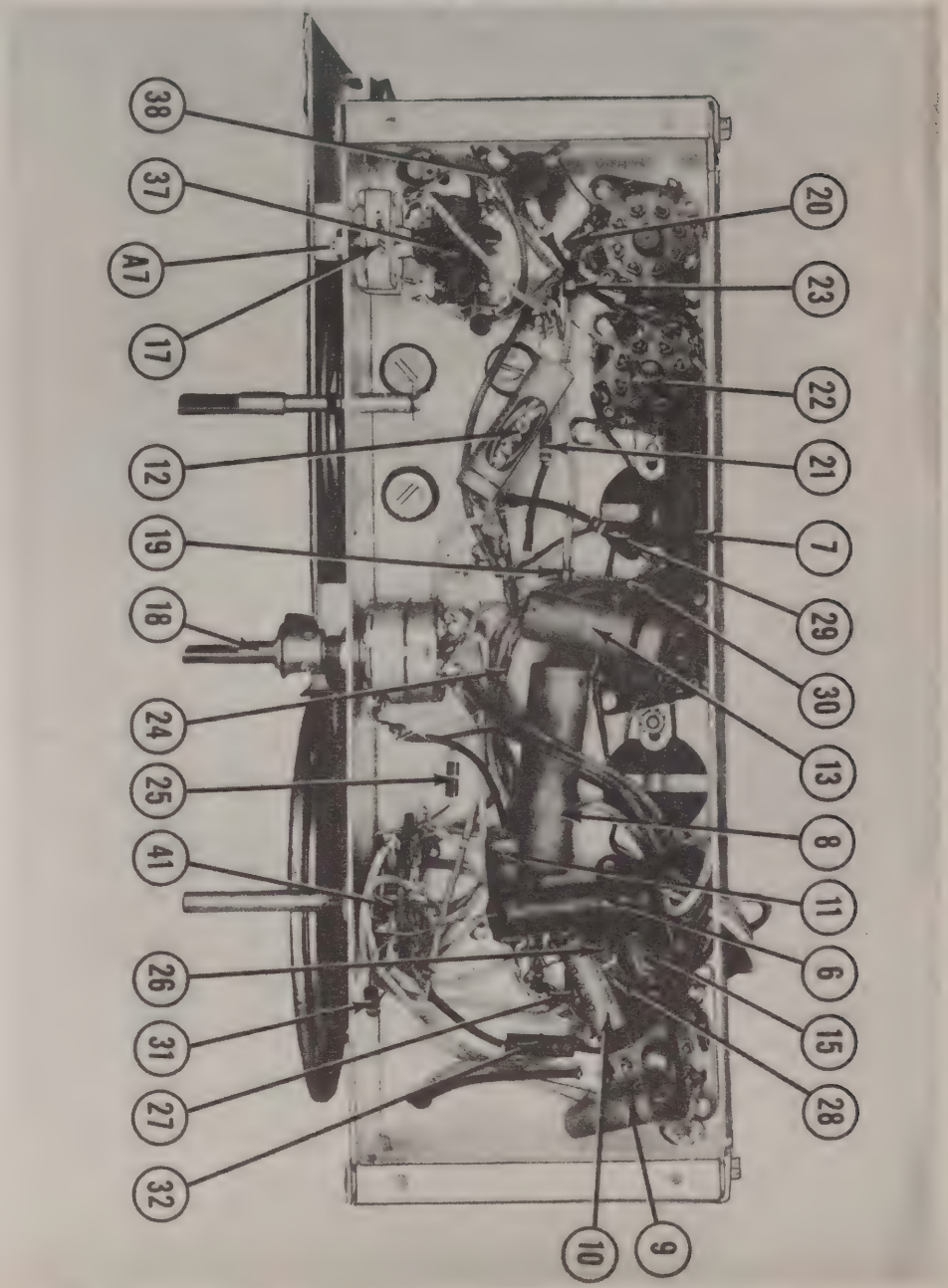
MISCELLANEOUS

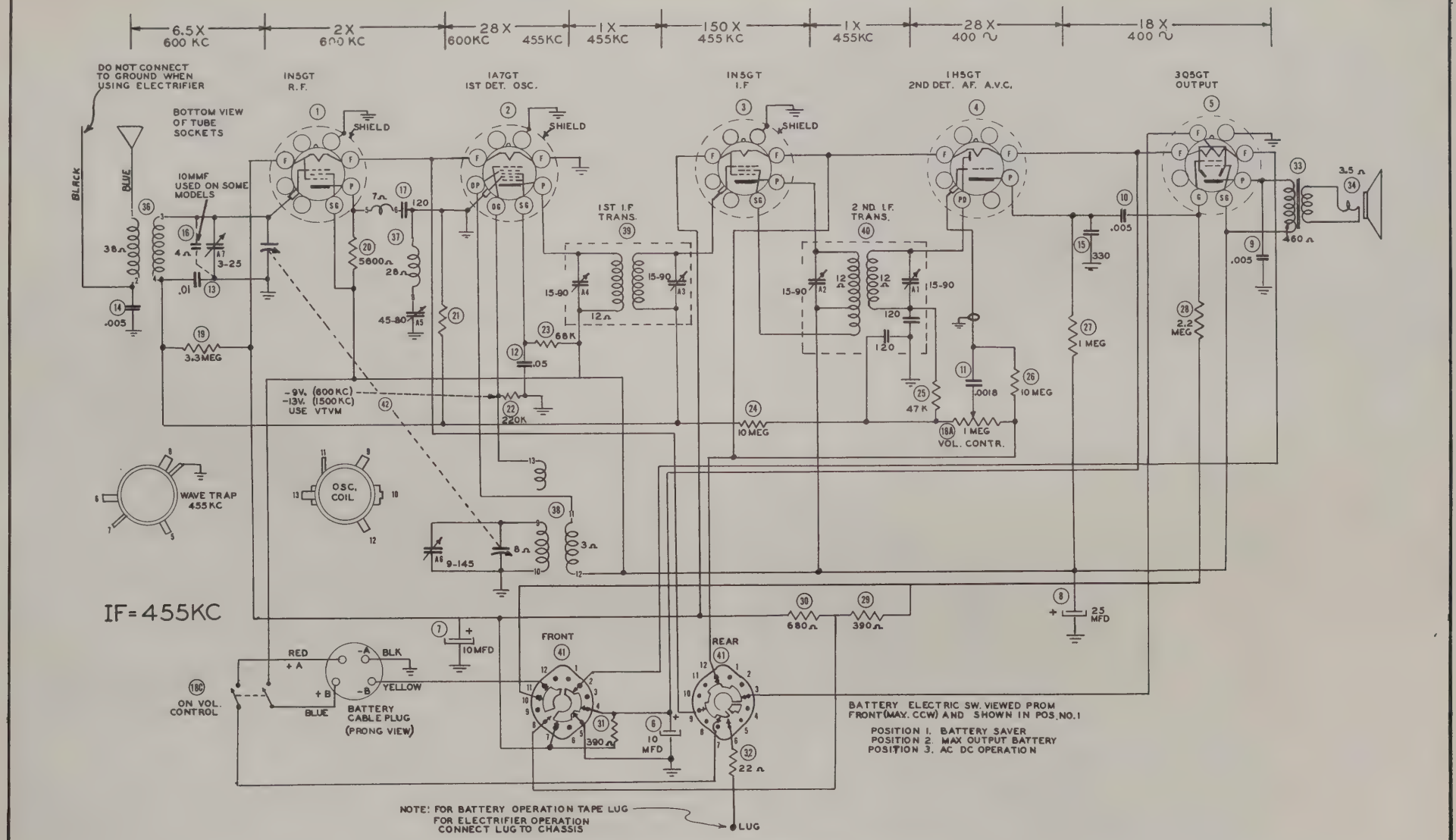
ITEM No.	PART NAME	RCA PART No.	NOTES
41	Switch	38670	"Battery-Electric" Power
42	Tuning Cap.	38599	2 Gang Variable Cap.
	Dial Scale	38821	
	Indicator	36090	Station Selector
	Arm	38675	"On-Off" Indicator
	Knob	36886	Power Switch
	"	36722	Tuning or Volume
	Spring	30900	Knob Retaining



Dial Cord Assembly

CHASSIS—BOTTOM VIEW





NOTE: VOLT & RES READINGS TAKEN WITH SWITCH IN NO. 2 POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0V.	1.55VDC	82V.DC	88V.DC	0V.	0V.	0V.	0V.	0V.
2	1A7GT	0V.	0V.	88V.DC	46V.DC	0V.	88VDC	1.55VDC	0V.	0V.
3	1N5GT	0V.	1.55VDC	88V.DC	88V.DC	88V.DC	88V.DC	0V.	0V.	0V.
4	1H5GT	0V.	0V.	47V.DC	-5.2VDC	2V. DC	-5.2VDC	1.55VDC	0V.	-.05V.DC
5	3Q5GT	0V.	0V.	85V.DC	88V.DC	-.8V.DC	0V	0V	1.55V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0Ω	*	131KΩ	125KΩ	INF	INF	*	INF	2.7MEG
2	1A7GT	0Ω	*	125KΩ	193KΩ	225KΩ	125KΩ	*	0Ω	6 MEG
3	1N5GT	0Ω	*	125KΩ	125KΩ	125KΩ	125KΩ	*	0Ω	2.7MEG
4	1H5GT	0Ω	*	1.1 MEG	360Ω	875KΩ	360Ω	*	INF	10MEG
5	3Q5GT	0Ω	*	125KΩ	125KΩ	2.2MEG	INF	*	*	

464-6

* DO NOT USE OHMMETER TO CHECK FILAMENT RES.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR
MODELS 64F1, 64F2, 64F3

RCA VICTOR MODEL 64F3 (RC-1037A)

RCA VICTOR
MODELS 64F1, 64F2, 64F3

TRADE NAME	RCA Victor Models 64F1 & 64F2 (RC-1037), 64F3 (RC-1037A)
MANUFACTURER	Radio Corp. of America, RCA Victor Div., Camden, N. J.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	90 Volt "B" Battery & 1½ Volt "A" Battery - RCA VS022 or equivalent
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS

Set dial pointer at left hand calibration mark with rotors in full mesh. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to top cap. (grid) 1N5. Low side to chassis.	455KC	Quiet point at low freq. end of dial.	Across voice coil	A1,A2.	Adjust for maximum output.
"	High side to top cap. (grid) 1A7. Low side to chassis.	"	"	"	A3,A4.	" " " "
200 MMFD	High side to ant (blue) lead. Low side to chassis.	1300KC	1300KC	"	A5,A6.	" " " "
"	"	600KC	600KC	"	A7,A8.	" " " "
						Repeat adjustments A5,A6,A7, and A8 for exact alignment.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5	10	90	38593	TC42	M-10-150	UT-121	PRS150-12	BR1215	RF Bypass Pwr. Supp.
6	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	3Q5 Plate Bypass
7	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
8	.002	600	70622	TP405	S-6-002	TC-22	684-002	DT6D2	" "
9	.05	400	70611	TP426	S-4-05	TC-15	484-05	DT4S5	1A7 Screen Bypass
10	.1	200	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
11	330	500	39640	MC241	M0.5-33	1FM-33	1468-0003	5W5T3	Audio Plate Bypass
12	120	500	39630	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Tone Compensation
13	120	500	39630	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Diode
14	56		71927						Fixed Tuning Ant. Coil

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	1 Meg.	1	71168	MR53	D13-137	M-63-Z.	Volume Control - See Note 1
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

Note 1 - Install a 50KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

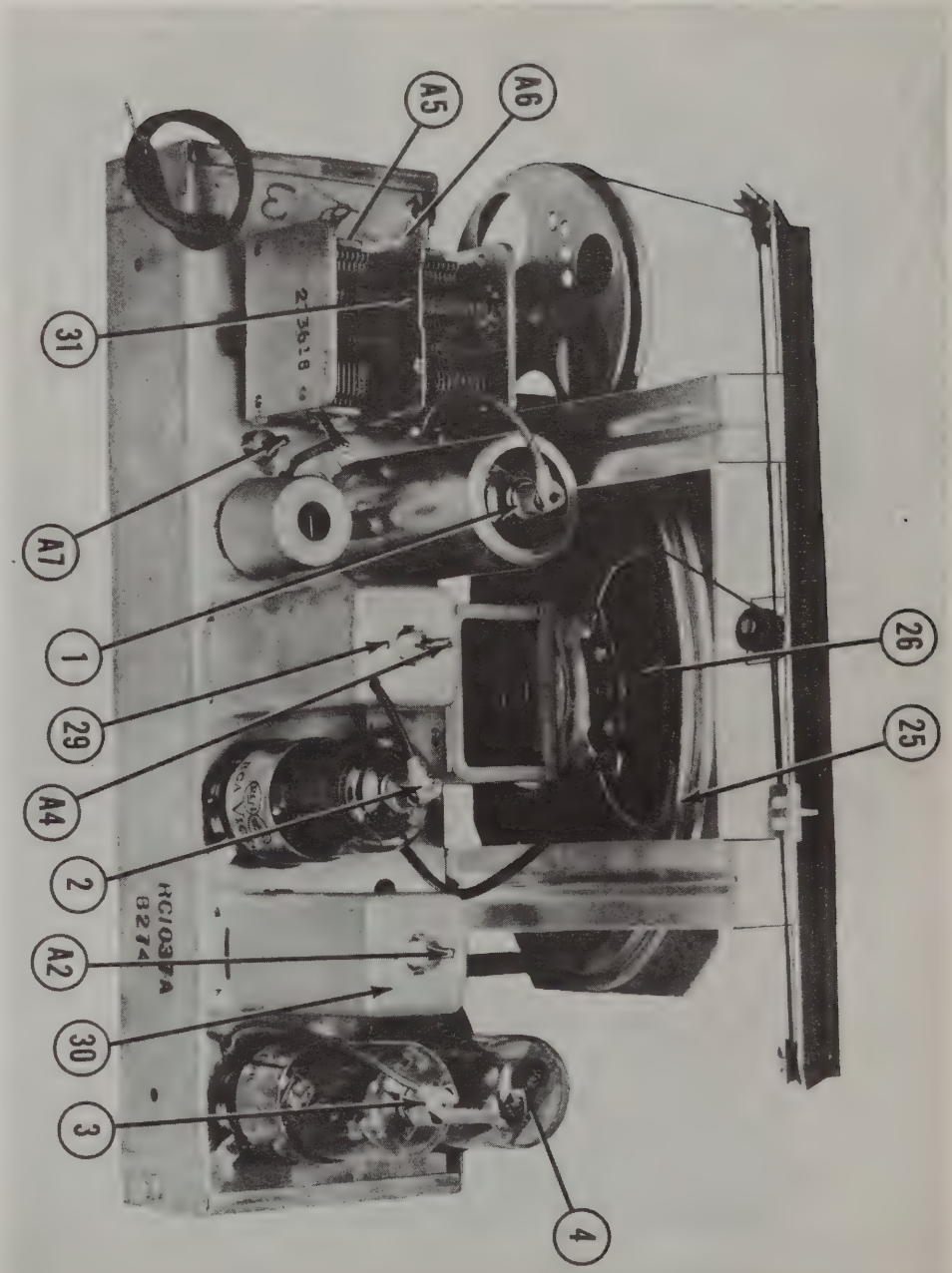
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
16	3.3 Meg.	½	31417	BTS-3.3 Meg.	Or.-Or.-Grn. Mixer Grid
17	220KΩ	½	14583	BTS-220K	Red-Red-Yl. Osc. Grid
18	68KΩ	½	14138	BTS-68K	Blue-Gray-Or. Mixer Screen Dropping
19	10 Meg.	½	30992	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
20	10 Meg.	½	30992	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
21	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
22	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
23	470Ω	½	30499	BTS-470	Yl.-Vi.-Br. Fixed Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
24	10,000Ω	3.8Ω	350Ω	.35Ω	922225-3	A-3878†	T-14S84†		†Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

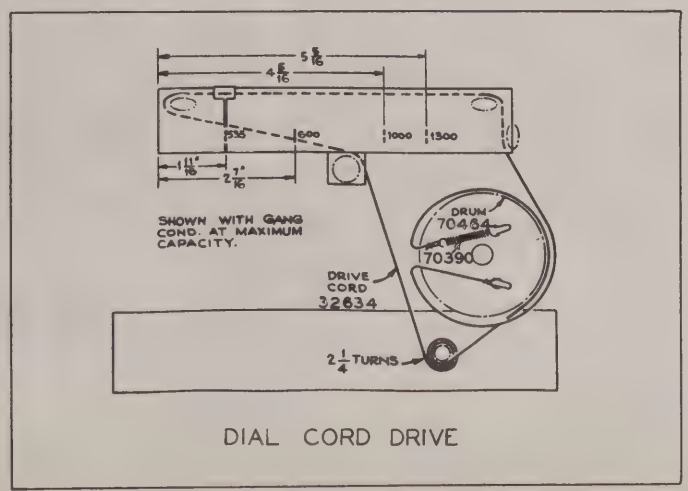
ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
25	LV	3.5Ω	92225c-2w			
	CONE DIA.	VC DIA.				
26	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
27	Ant. Coil	1Ω	4Ω	71404		
28	Osc. Coil	1.5Ω	4.5Ω	71401		
29	Input IF	1Ω	15.5Ω	71403		
30	Output IF	14.5Ω	14.8Ω	71400		

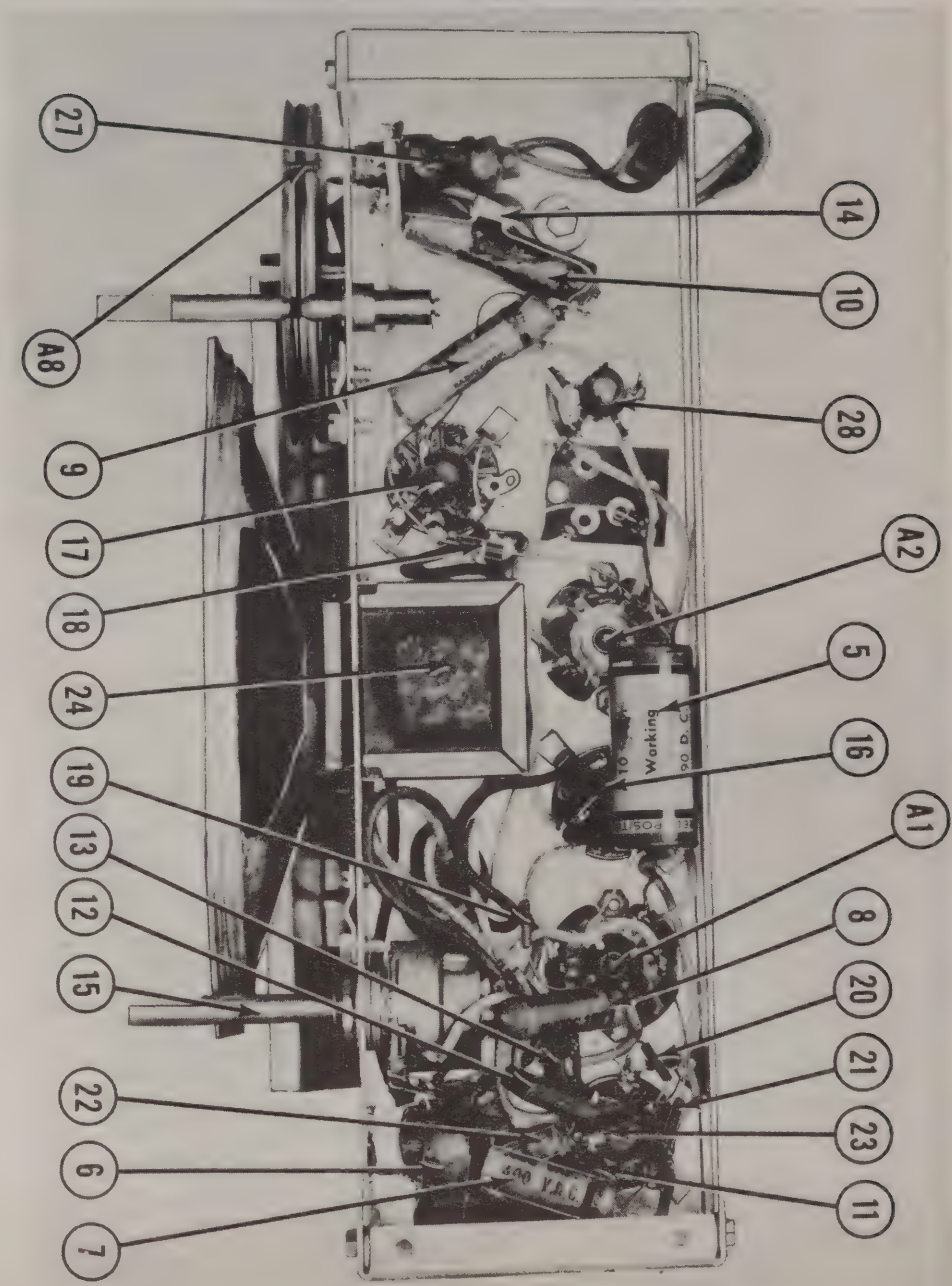
MISCELLANEOUS

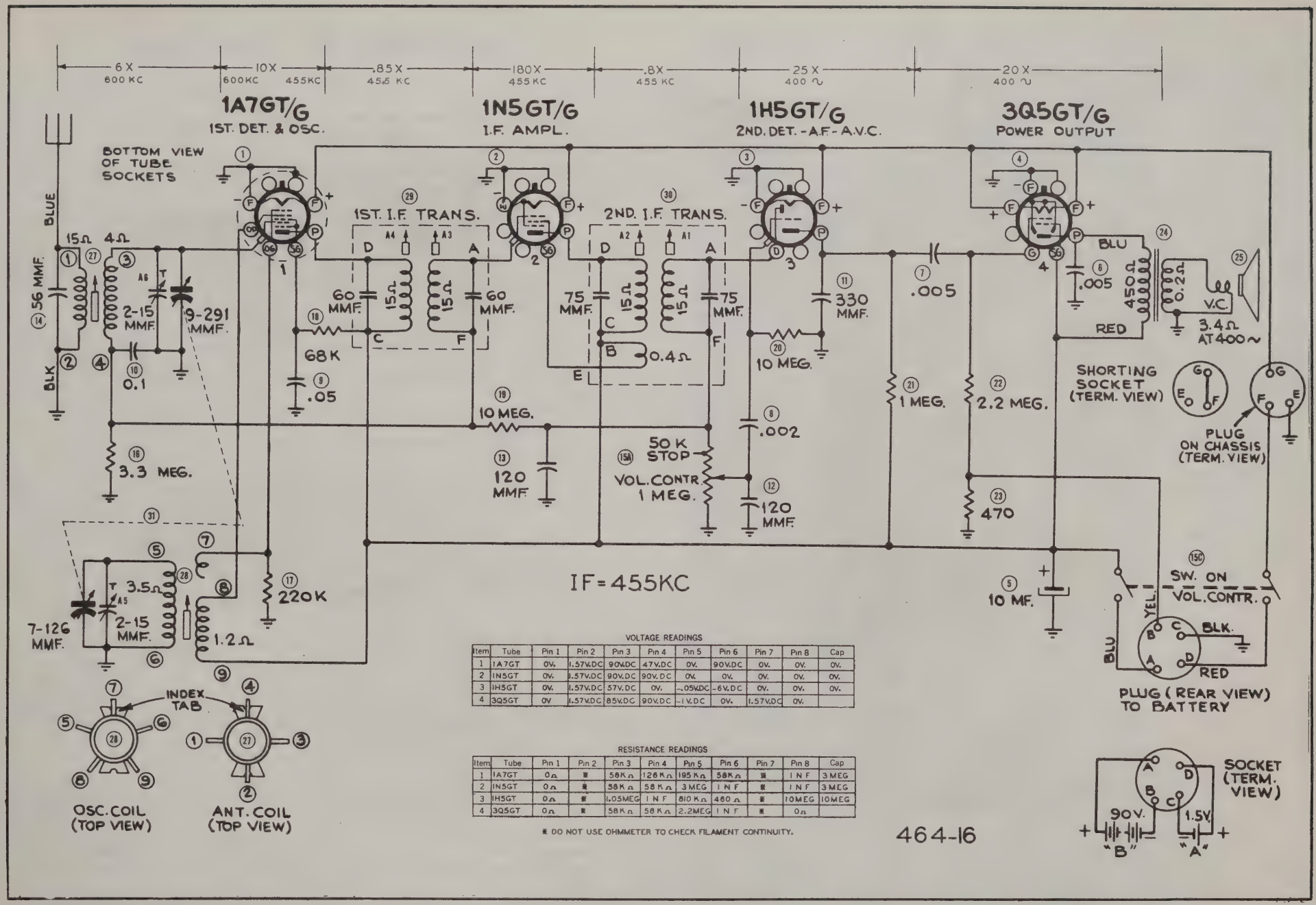
ITEM No.	PART NAME	RCA PART No.	NOTES
31	Tuning Cap.	71160	2 Gang Variable Cap.
	Indicator	70469	Station Selector
	Battery Plug	30550	4 Prong Male
	Battery Plug	71162	Shorting-3 pronged Male
	Dial Scale	70476	Glass for 64F1 & 64F2
	" "	71166	" " 64F3
	Knob	70474	Tuning Control-Ivory 64F2
	"	70473	" " -Walnut-64F1 & 64F3
	"	71165	Volume Control-Ivory 64F2
	"	71164	" " -Walnut-64F1 & 64F3
	Spring	30900	Retaining Spring for Knobs



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.57V.DC	90V.DC	47V.DC	0V.	90V.DC	0V.	0V.	0V.
2	1N5GT	0V.	1.57V.DC	90V.DC	90V.DC	0V.	0V.	0V.	0V.	0V.
3	1H5GT	0V.	1.57V.DC	57V.DC	0V.	-.05V.DC	-6V.DC	0V.	0V.	0V.
4	3Q5GT	0V	1.57V.DC	85V.DC	90V.DC	-1V.DC	0V.	1.57V.DC	0V.	

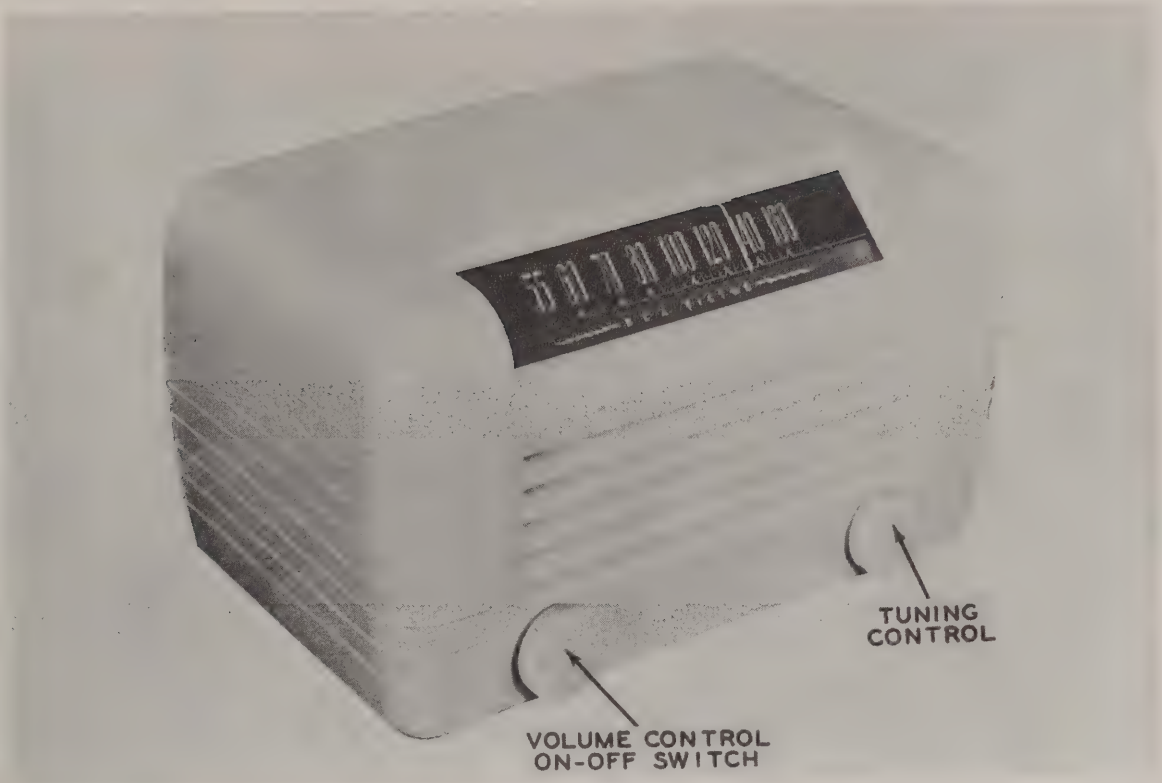
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	*	58KΩ	126KΩ	195KΩ	58KΩ	*	1 MEG	3 MEG
2	1N5GT	0Ω	*	58KΩ	58KΩ	3 MEG	1 MEG	*	1 MEG	3 MEG
3	1H5GT	0Ω	*	1.05MEG	1 MEG	810KΩ	460Ω	*	10MEG	10MEG
4	3Q5GT	0Ω	*	58KΩ	58KΩ	2.2MEG	1 MEG	*	0Ω	

* DO NOT USE OHMMETER TO CHECK FILAMENT CONTINUITY.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



RCA VICTOR MODEL 65X2

TRADE NAME	RCA Victor Models 65X1, 65X2 (Chassis No. RC-1034)
MANUFACTURER	Radio Corp. of America, RCA Victor Div. - Camden, N. J.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES(FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING - .270 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS

Set dial pointer at left-hand end calibration mark with rotor in full mesh. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7. Low side to chassis.	455KC	Quiet point at high freq. end of dial.	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to chassis and decrease dummy ant. to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to chassis.	"	"	"	A3,A4.	"
200 MMFD	High side to ant. lead. Low side to chassis.	1300KC	1300KC	"	A5,A6.	Adjust for maximum output. Use isolation transformer or isolating capacitor.
"	"	600KC	600KC (rock rotor)	"	A7.	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	70408	2N520	M-50+30-150	TA-530	PRS150-40-40	BRD3515	Filter - Red 95676-1
B	30	150							"
7	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	50L6 Plate Bypass
9	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
10	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	" "
11	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.1	400	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolating
13	.01	200	70610	TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
14	330	500	39640	MC241	MO.5-33	1FM-33	1466-0003	5W5T3	Audio Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	500KΩ	1	70322	MR48	D13-133	M-30-Z	Volume Control - See Note 1
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 15A per instruction
C	Switch		" "	M26T	47	SW-A6	" " " " "

Note 1 - Install a 50KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

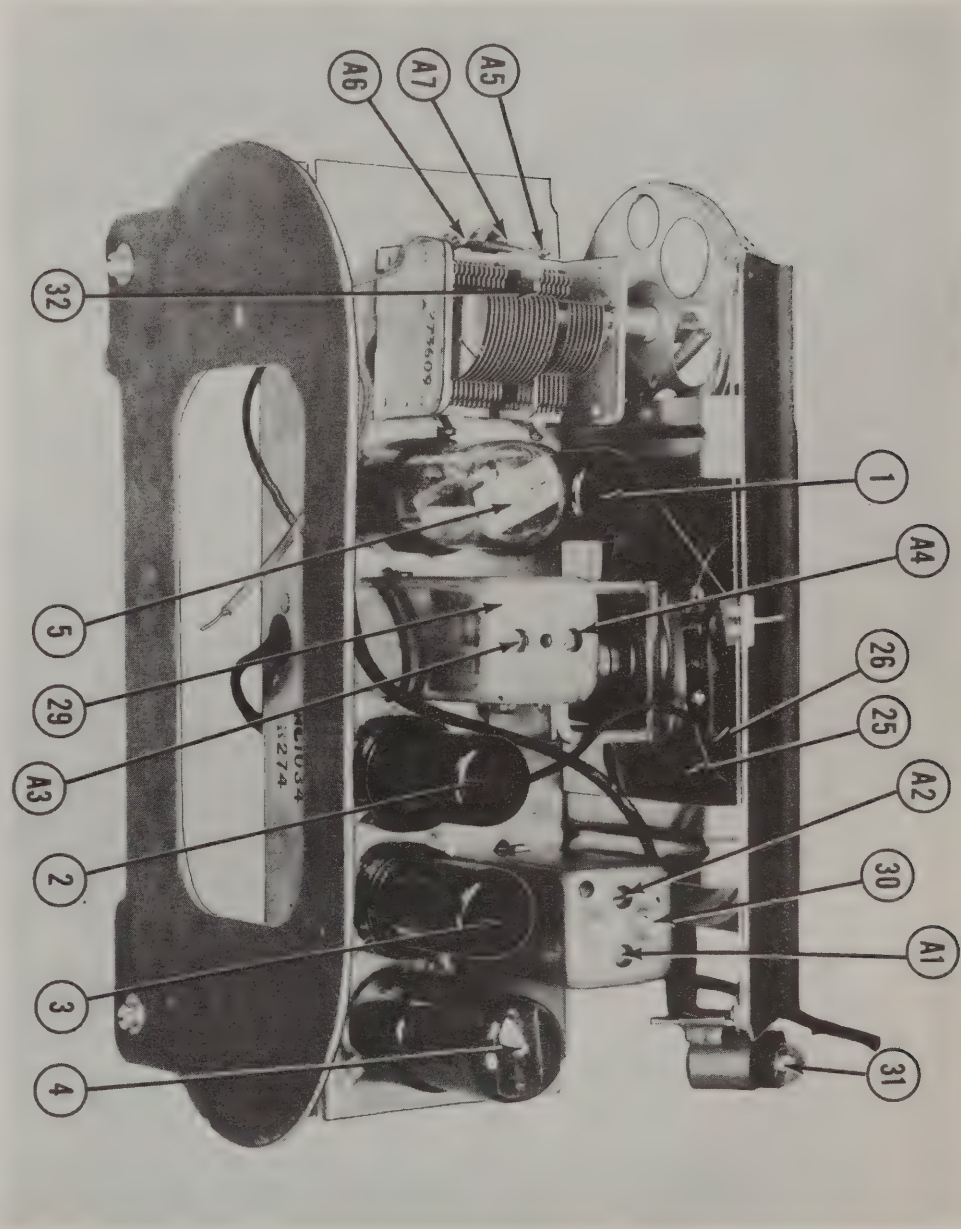
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
16	22KΩ	½	30492	BTS-22K	Red-Red-Or. Osc. Grid
17	220KΩ	½	14583	BTS-220K	Red-Red-Yl. Line Isolating
18	3.3 Meg.	½	31417	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	4.7 Meg.	½	30931	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
20	220KΩ	½	14583	BTS-220K	Red-Red-Yl. 1st AF Plate Load
21	470KΩ	½	30648	BTS-470K	Yl.-Vi.-Yl. Output Grid
22	120Ω	½	30189	BW-½-120	Br.-Red-Br. " Cathode
23	1200Ω	1	6134	BTA-1200	Br.-Red-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
24	1800Ω	2.85Ω	220Ω tapped @ 9Ω	.67Ω	922225-1W	A-38761			†Add filter if necessary to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
25	PM	3.5Ω	922258-1W			
	CONE DIA.	VC DIA.				
26	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
27	Loop Ant.	.2Ω	1.5Ω	70468		
28	Osc. Coil	.5Ω	4Ω	70477		
29	Input IF	14.5Ω	13.5Ω	70465	16-6358	
30	Output IF	17Ω	17.5Ω	70466	16-6670*	

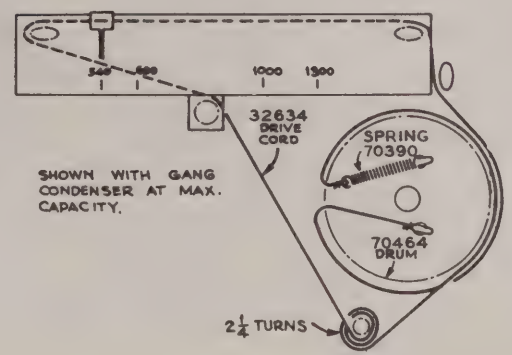
*Remove 47KΩ resistor in IF can and add to low side of secondary.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA PART No.		INSTALLATION NOTES
31	Bayonet	6-8	0.2	White	11765		Type 51

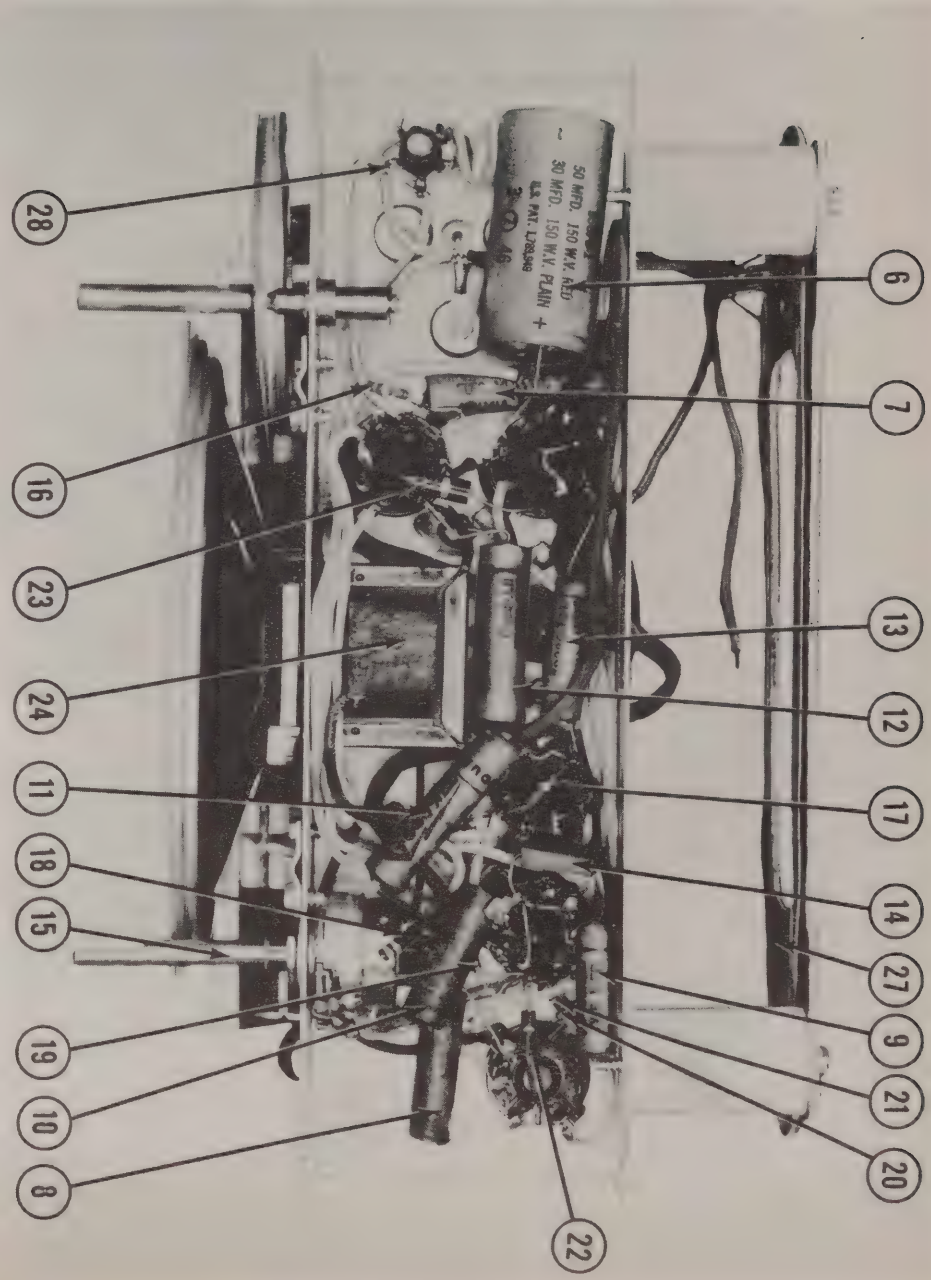
MISCELLANEOUS

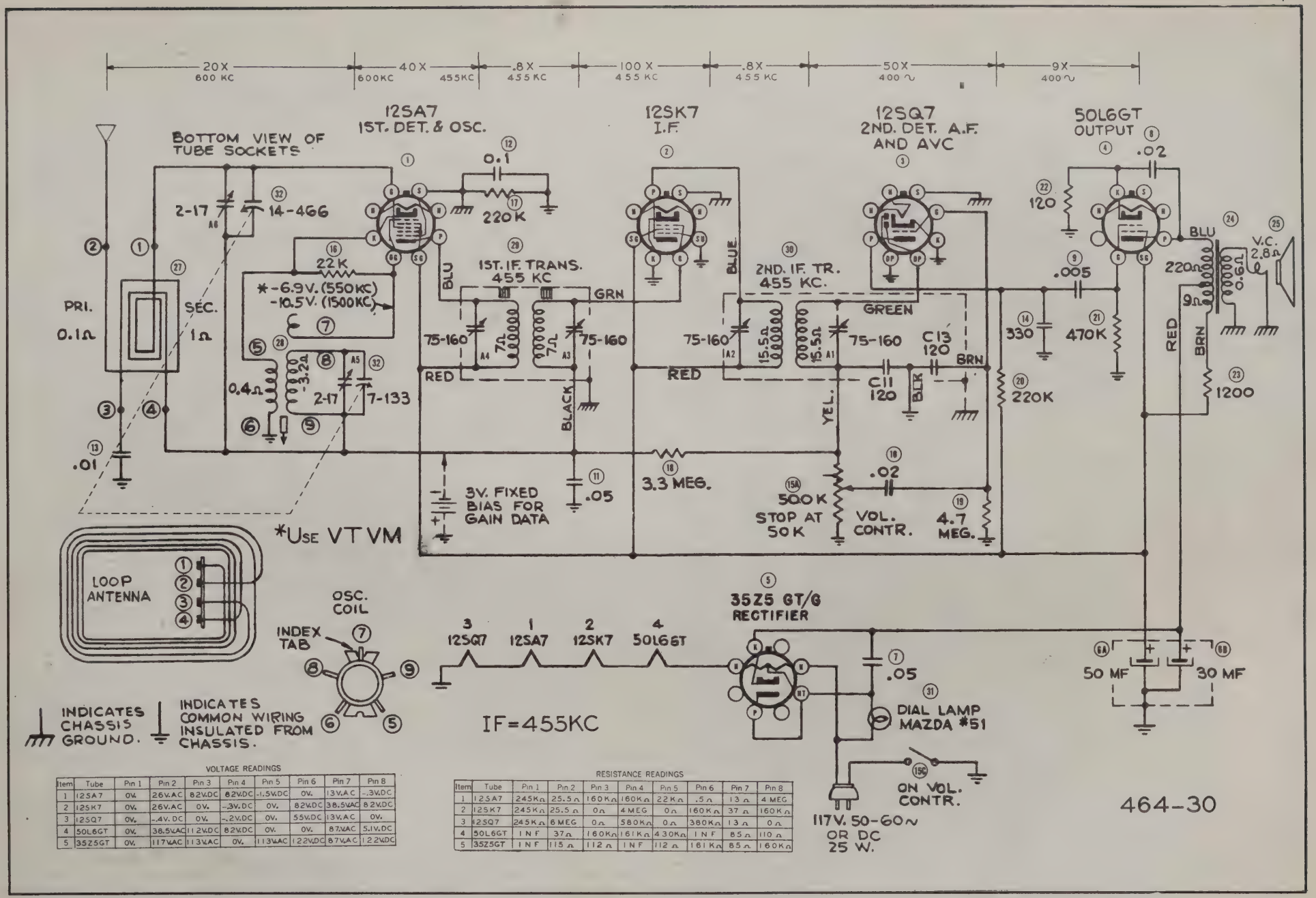
ITEM No.	PART NAME	RCA PART No.	NOTES
32	Tuning Cap.	70463	2 Gang Variable Complete
	Indicator	70469	Station Selector
	Dial Scale	70476	Glass
	Knob	70474	Control - Ivory 65X2
	"	70473	" - Walnut 65X1
	"	71821	" - Maroon 65X1
	Spring	30900	Retaining Spring for Knob



Dial-Indicator and Drive Mechanism

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	26V.AC	82V.DC	82V.DC	-1.5V.DC	0V.	13V.AC	-.3V.DC
2	12SK7	0V.	26V.AC	0V.	-.3V.DC	0V.	82V.DC	38.5VAC	82V.DC
3	12SQ7	0V.	-.4V. DC	0V.	-.2V.DC	0V.	55V.DC	13V.AC	0V.
4	50L6GT	0V.	38.5VAC	112V.DC	82V.DC	0V.	0V.	87VAC	5.1V.DC
5	35Z5GT	0V.	117VAC	113VAC	0V.	113VAC	122V.DC	87V.AC	122V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	245KΩ	25.5Ω	160KΩ	160KΩ	22KΩ	.5Ω	13Ω	4 MEG
2	12SK7	245KΩ	25.5Ω	0Ω	4 MEG	0Ω	160KΩ	37Ω	160KΩ
3	12SQ7	245KΩ	6 MEG	0Ω	580KΩ	0Ω	380KΩ	13Ω	0Ω
4	50L6GT	INF	37Ω	160KΩ	161KΩ	430KΩ	INF	85Ω	110Ω
5	35Z5GT	INF	115Ω	112Ω	INF	112Ω	161KΩ	85Ω	160KΩ

464-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SPARTON
MODEL 5AW06

SPARTON
MODEL 5AW06

SPARTON MODEL 5AW06

TRADE NAME Sparton Model 5AW06 (Ch. 5-06)
MANUFACTURER Sparks-Withington Co., Jackson, Michigan
TYPE SET AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE) Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50L6GT Power Output, 35Y4 Rectifier.

POWER SUPPLY 117 Volts AC-DC RATING - .255 Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1620KC

ALIGNMENT INSTRUCTIONS

Set pointer at left hand stop line with gang in fully closed position. Place loop in same relative position to chassis as it will be with set in cabinet. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #6 (grid) 14Q7. Low side to B-.	455KC	High freq.end of dial.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to prevent excessive hum modulation.
	Loop	1600KC	1600KC	"	A5	Adjust for maximum output. Connect output of signal generator to loop of two turns of wire and radiate signal into receiver loop.
	"	1400KC	Tune in 1400 KC signal.	"	A6	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	PA4301	2N511	M-40+30-150	TA-430	PRS150-40-40	BR4415	Filter - Red
B	40	150							" - Yellow
7	.05	400	PC40GL-503	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.01	400	PC40GL-103	TP421	S-4-01	TC-11	484-01	DT4S1	50L6 Plate Bypass
9	.002	600	PC40GL-202	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
10	.01	400	PC40GL-103	TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	200	PC40GK-503	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
12	.15	400	PC40GL-154	TP417	S-4-2	TC-1	484-.15	DT4P2	Line Isolating
13	.05	200	PC40GK-503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	50	500	MC60G-511	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Audio Plate Bypass
15	27	500	MC60C-271	MC220	M0.5-425	MS-425	1468-000025	5W5Q25	RF Bypass Diode
36	.05	200	PC40FK-503	TP426	S-4-05	TC-15	484-05	DT4S5	Osc. Tuned Circuit *
37	15	500	PA4328-1						Fixed Trimmer *
38	.001	400	PC40GL-102	TP404	S-6-001	TC-21	484-001	DT6D1	Ant. Coupling *

*Used in earlier productions

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	PA4400-2	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

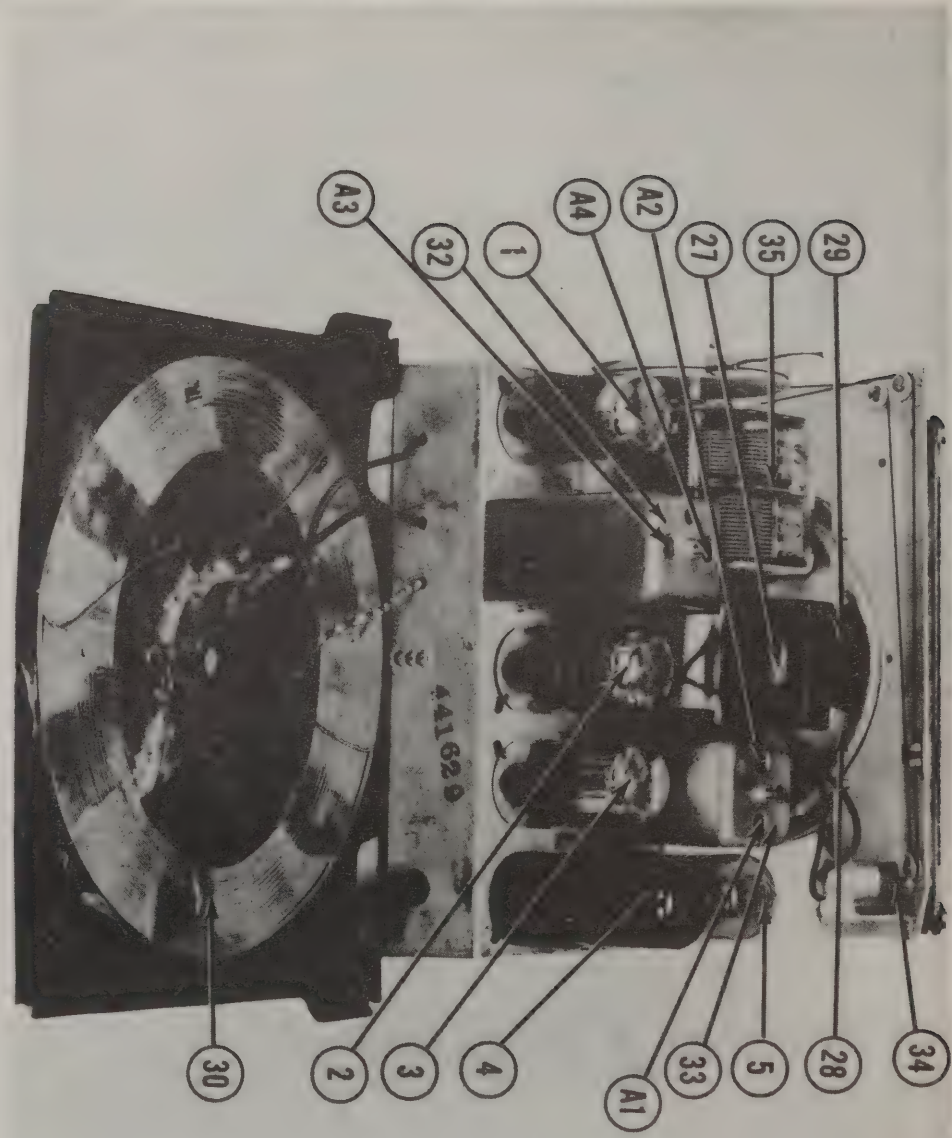
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
17	15 Meg.	½	BR12S-156	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
18	22KΩ	½	BR12S-223	BTS-22K	Red-Red-Or. Osc. Grid
19	2.2 Meg.	½	BR12N-225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	150KΩ	½	BR12N-154	BTS-150K	Br.-Grn.-Yl. Line Isolating
21	5.6 Meg.	½	BR12S-565	BTS-5.6 Meg.	Grn.-blue-Grn. 1st AF Grid
22	220KΩ	½	BR12N-224	BTS-220K	Red-Red-Yl. 1st AF Plate Load
23	470KΩ	½	BR12N-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½	BR12S-151	BW-½-150	Br.-Grn.-Br. Output Cathode
25	1200Ω	1	CR12S-122	BTA-1200	Br.-Red-Red Filter
26	82Ω	½	BR12S-820	BW-½-82	Gray-Red-Blk. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
27	2300Ω	3.4Ω	160Ω	.6Ω	Part of 63000-3C	A-3876†	T-14S82†		†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA SPARTON PART No.	JENSEN PART No.		INSTALLATION NOTES
28	FIELD PM	VC IMP. 3.4Ω	63000-3C	ST-107		
29	CONE DIA. 4-13/16"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

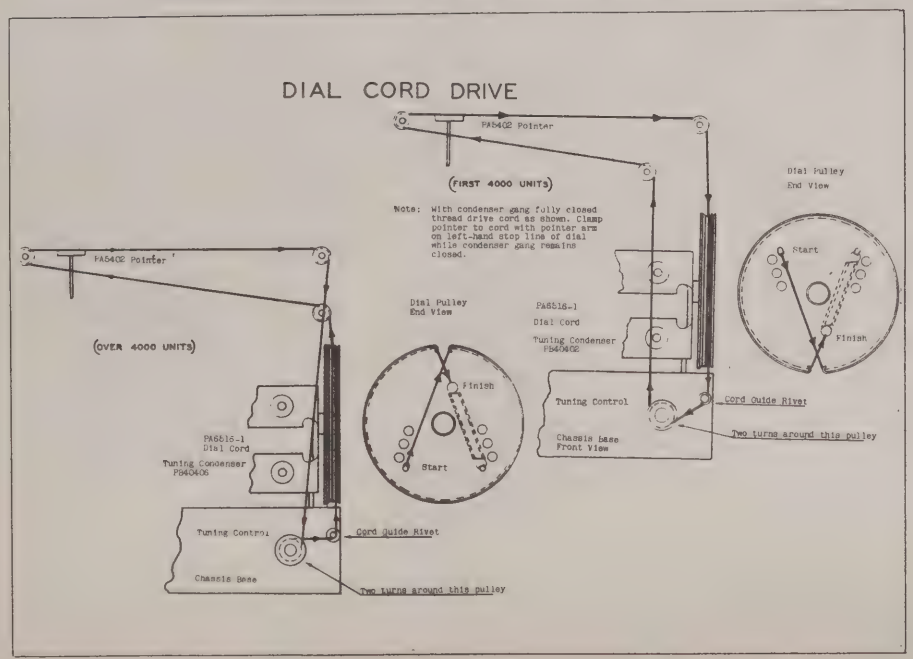
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SPARTON PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
30A	Loop Ant.			AB3105-1		Used in 1st production
30B	Loop Ant.	0Ω	.7Ω	AB43024-1		" " later "
31A	Osc. Coil			AB42200-1	14-1040	" " 1st "
31B	" "	.5Ω	6Ω	AA6752-3	14-1040	
32	Input IF	9.5Ω	17.5Ω	AA6800-1	16-6658	
33	Output IF	6Ω	40Ω	AA6800-2	16-6660	

DIAL LIGHT

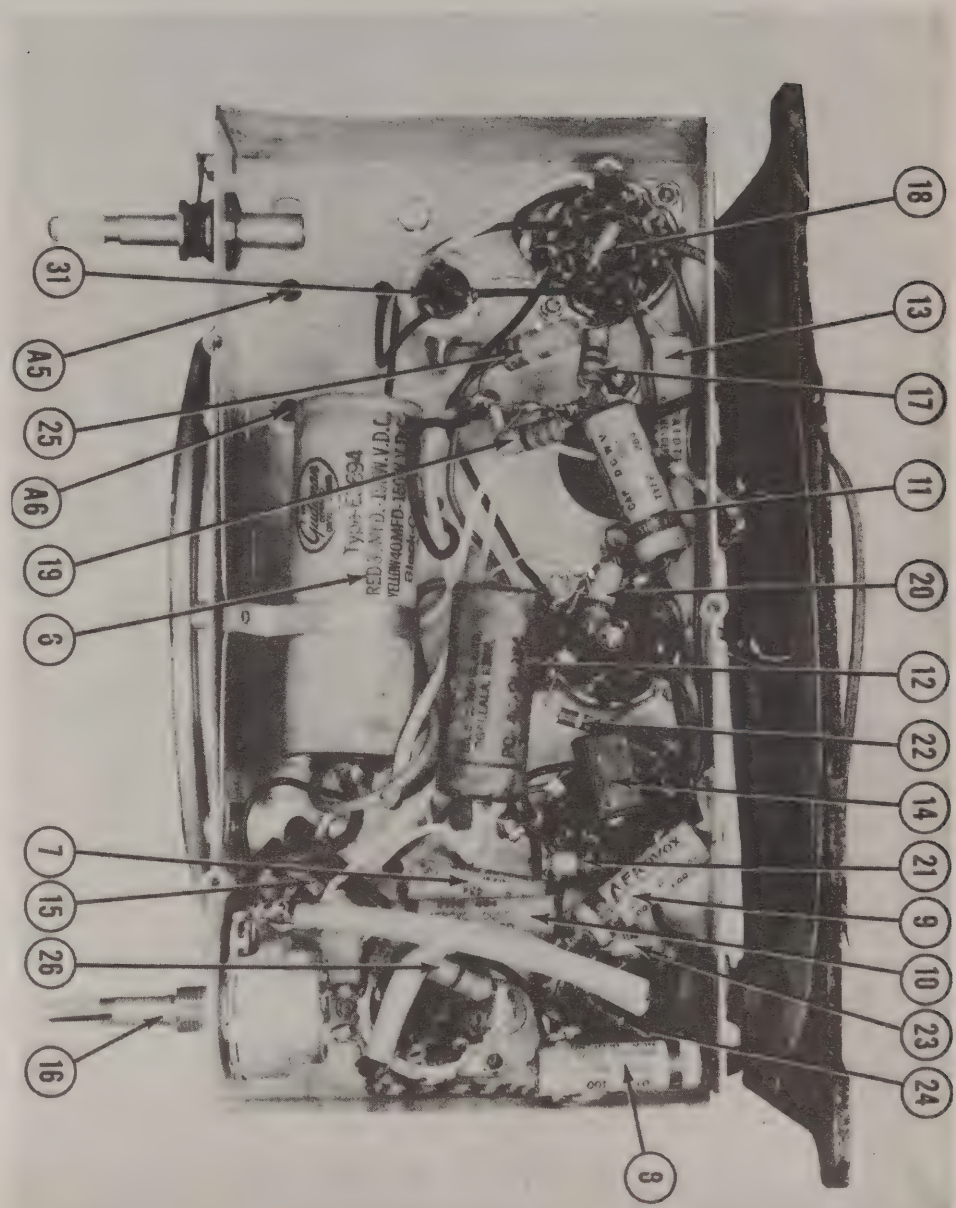
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SPARTON PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown	PA4100-2		Type 47

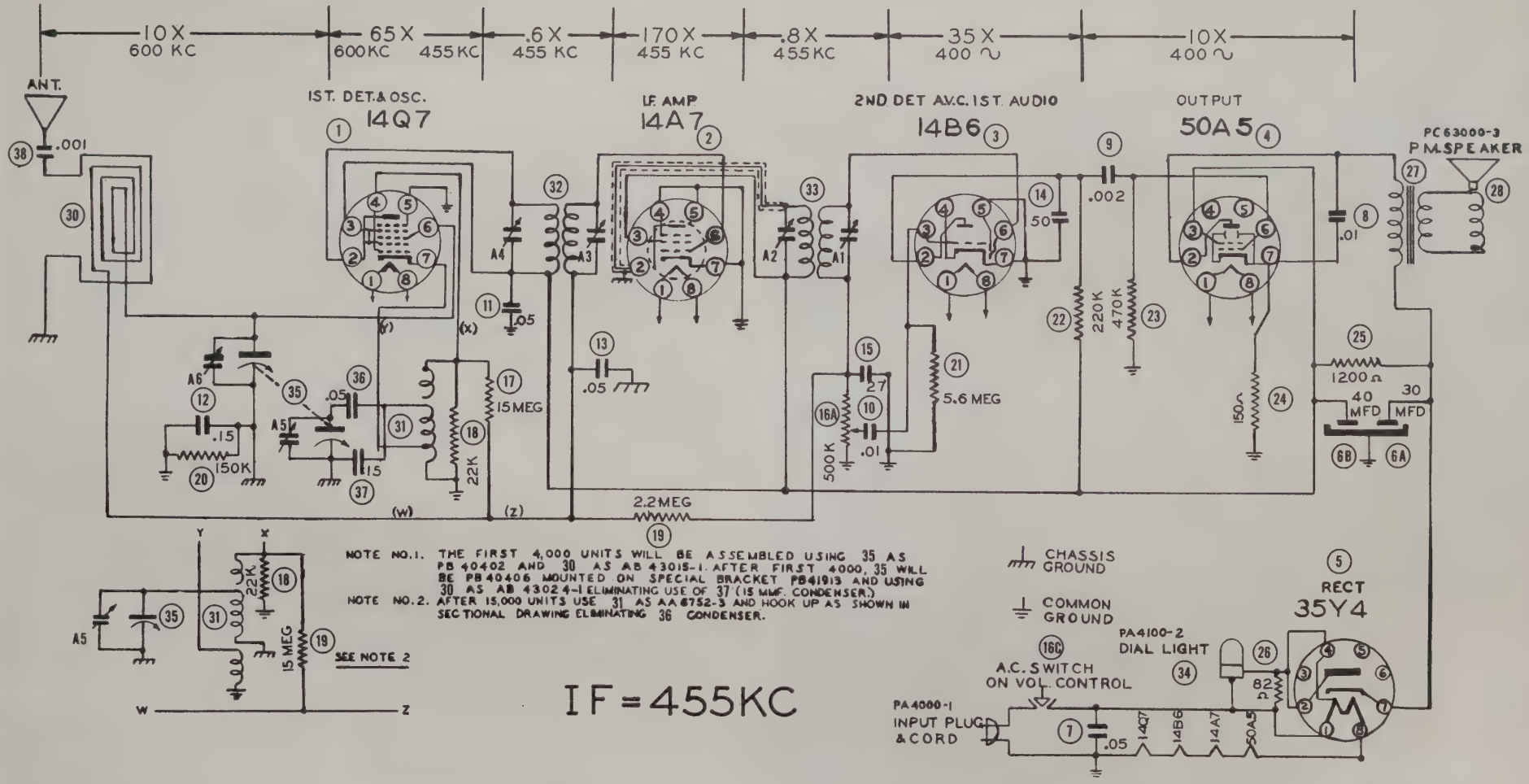
MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
35A	Tuning Cap.	PB40402	2 Gang Var. Cap.-Early Production
35B	" "	PB40406	" " " " -Later "



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12V.AC	90V.DC	90V.DC	-.25V.DC	0V.	-.17V.DC	0V.	0V.
2	14A7	25V.AC	90V.DC	90V.DC	0V.	0V.	-.17V.DC	0V.	37V.AC
3	14B6	25V.AC	62V.DC	-.5V.DC	0V.	0V.	-.4V.DC	0V.	12V.AC
4	50L6GT	0V.	88V.AC	112V.DC	90V.DC	0V.	0V.	37V.AC	6.2V.DC
5	35Z5GT	0V.	117V.AC	113V.AC	0V.	113V.AC	0V.	88V.AC	118V.DC

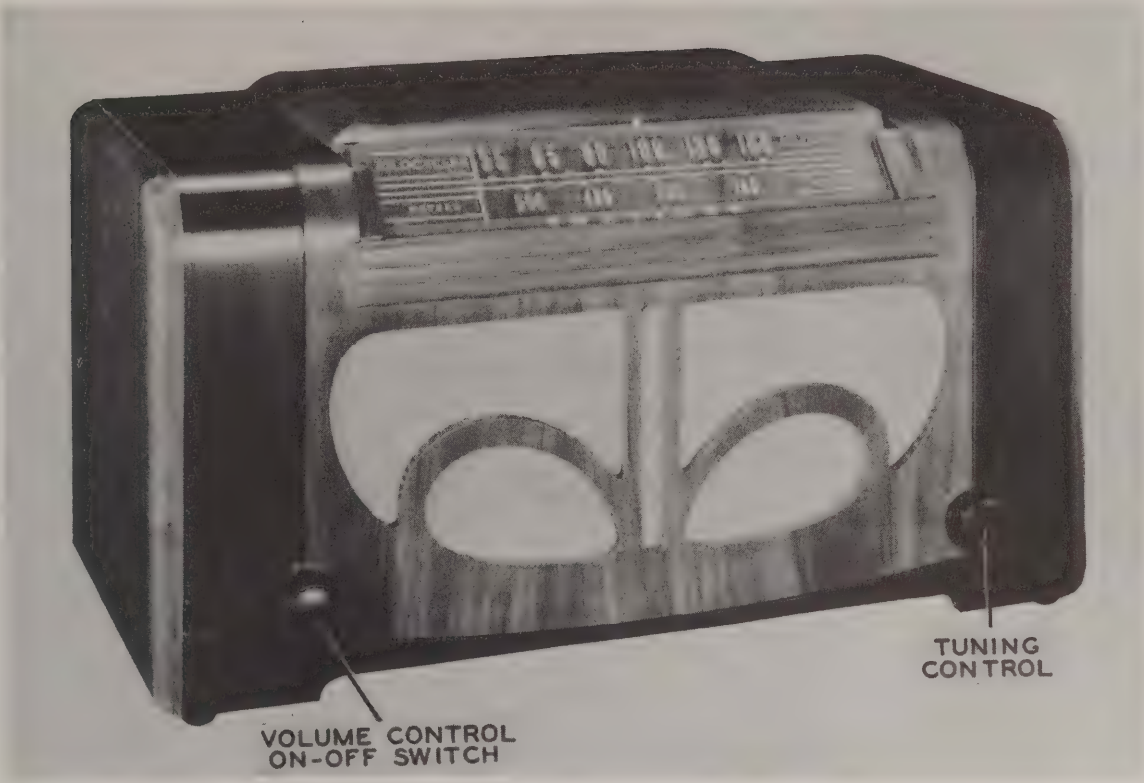
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12Ω	21KΩ	21KΩ	20KΩ	0Ω	2.2 MEG	.5Ω	0Ω
2	14A7	24Ω	21KΩ	21KΩ	0Ω	0Ω	2.2MEG	0Ω	36Ω
3	14B6	24Ω	241KΩ	6 MEG	0Ω	0Ω	520KΩ	0Ω	12Ω
4	50L6GT	INF	82Ω	20KΩ	21KΩ	440KΩ	0Ω	36Ω	150Ω
5	35Z5GT	INF	111Ω	108Ω	INF	108Ω	INF	82Ω	20KΩ

464-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TRUETONE
MODEL D-2621

TRUETONE
MODEL D-2621

TRUETONE MODEL D-2621

TRADE NAME	Truetone Model D-2621
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Battery Operated Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1N5GT RF Amp., 1A7GT Converter, 1N5GT IF Amp., 3Q5GT Power Output.
POWER SUPPLY	90 Volt "B" Battery & 1.5 Volt "A" Battery in Pack Form (Wizard B6430 or equivalent)
RATING	11.6 MA @ 90 Volts DC plus .330 Amps. @ 1.5 Volt DC
TUNING RANGE—BROADCAST	540-1620KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to top cap (grid) 1A7. Low side to chassis.	455KC	High freq. end tuning gang at minimum capacity.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
.0001 MFD	High side to ant. wire (green). Low side to chassis.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	A6,A7.	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1N5GT	1N5GT	5Y	
2	Converter	1A7GT	1A7GT	7Z	
3	IF Amp.	1N5GT	1N5GT	5Y	
4	Det-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	16	150	25600	TC44	M-16-150	UT-161	PRS150-16	BR1615	RF Bypass Pwr. Supp.
7	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	Tone Compensation
8	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
9	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	" "
10	.05	200		TP423	S-4-05	TC-15	484-05	DT4S5	1A7 Screen Bypass
11	.05	200		TP428	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	" "
13	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
14	100	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
15	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	25367	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

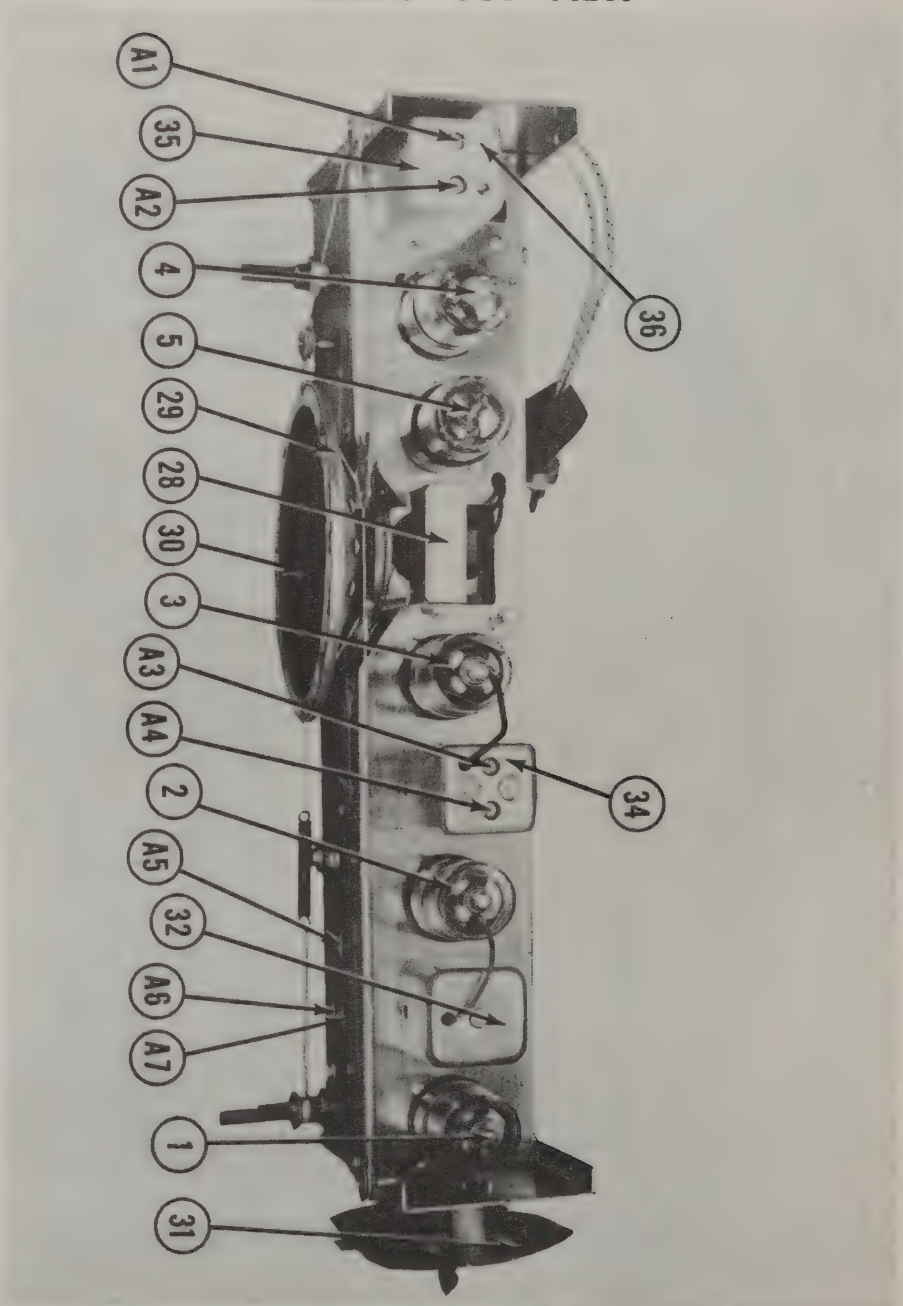
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
17	1000Ω	½		BTS-1000	Br.-Blk.-Red Ant. Loading
18	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
19	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Osc. Grid
21	68KΩ	½		BTS-68K	Blue-Gray-Or. Osc. Screen Dropping
22	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue 1st AF Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
24	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Output Grid
25	470Ω	½		BTS-470	Yl.-Vi.-Br. Fixed Bias
26	15KΩ	½		BTS-15K	Br.-Grn.-Or. Tone Compensation
27	.56Ω	½		BW-½-.56	Grn.-Blue-Silver Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
28	9000Ω	3.1Ω	470Ω	.5Ω	25594	A-3878†	T-14S84†		†bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

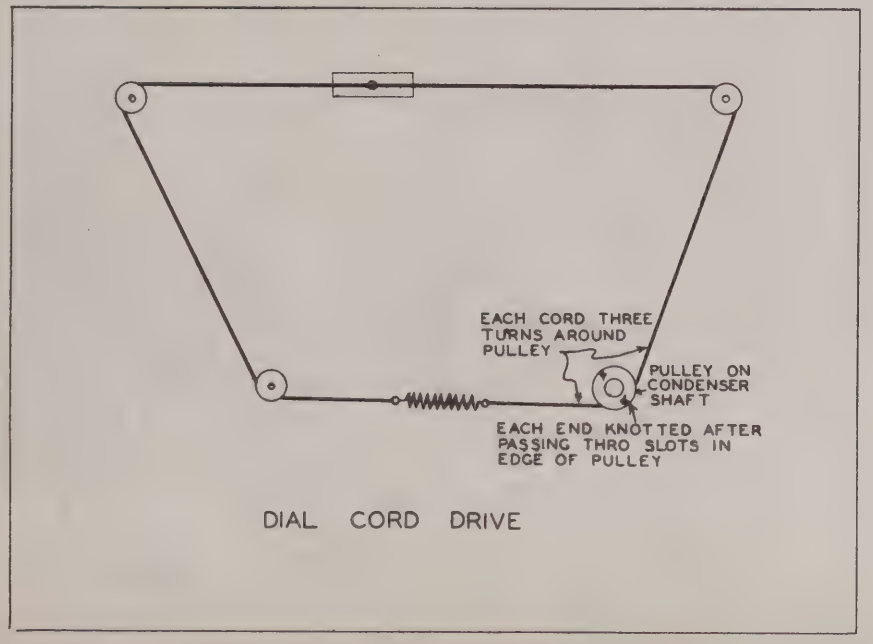
ITEM No.	RATINGS		REPLACEMENT DATA TRUETONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
29	PM	3.1Ω	25593	ST-107		
	CONE DIA.	VC DIA.				
30	4-9/16	9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

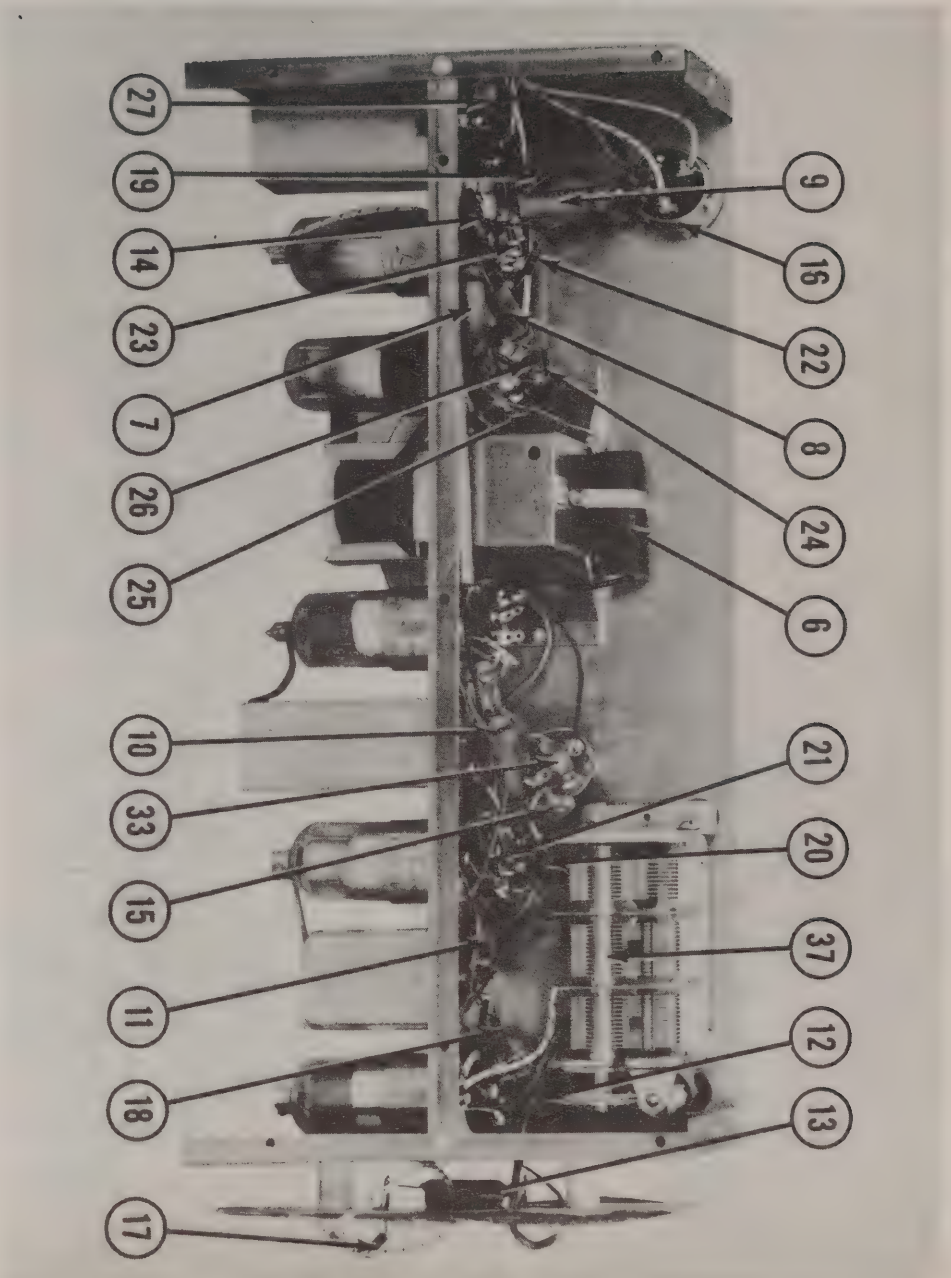
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
31	Loop Ant.	1Ω	2.4Ω			
32	RF Coil	72Ω	6Ω		14-7558	
33	Osc. "	9Ω	8.8Ω		14-1040	
34	Input IF	17.5Ω	17.5Ω		16-6658	
35	Output IF	17.5Ω			16-6660	

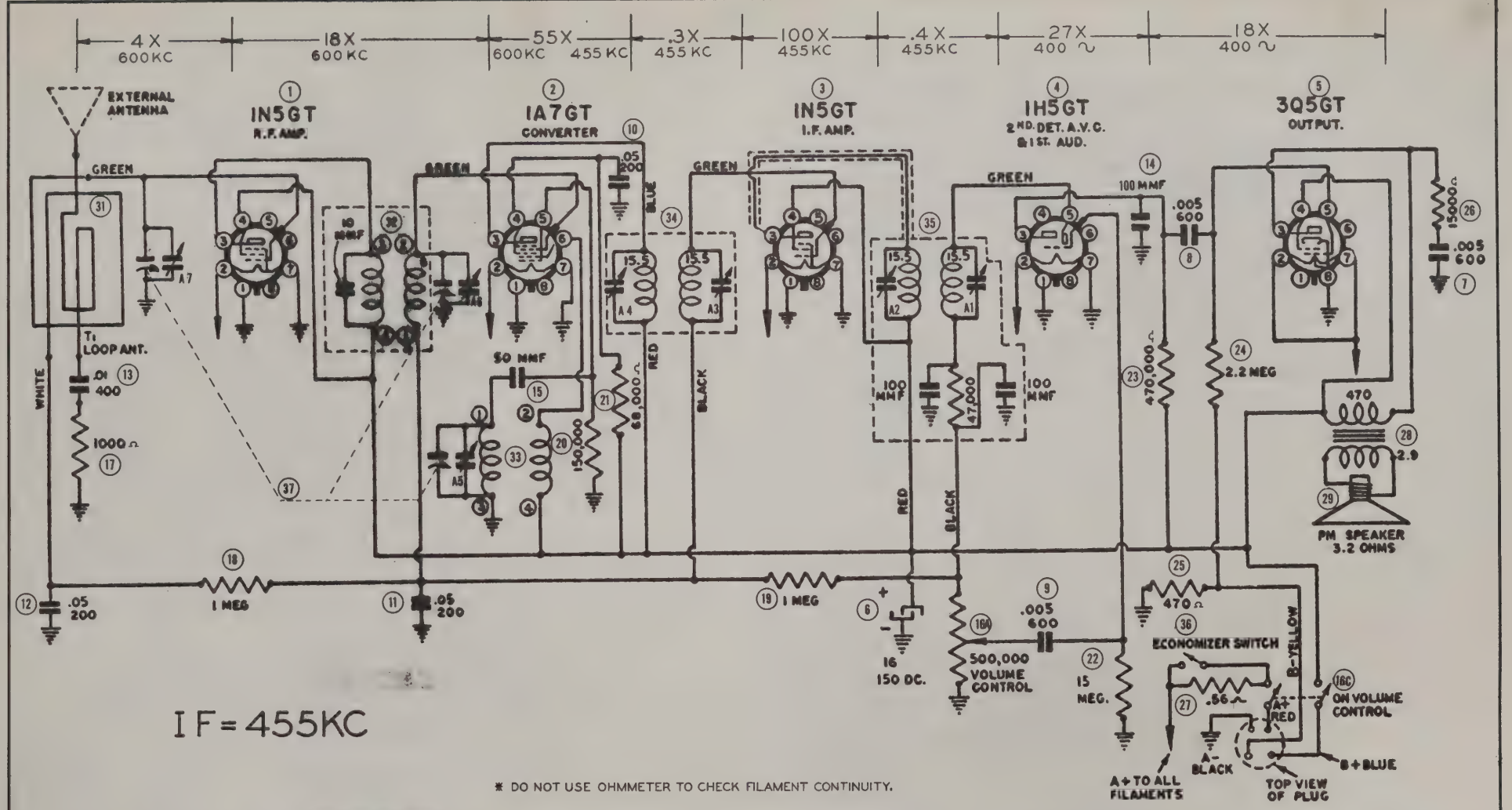
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
36	Switch	25319	Battery "Economizer"
37	Tuning Cap.	25592	3 Gang Variable Cap.
	Dial Cord	25767	Complete with Spring & Pointer Coupling
	Knob	25696	Tuning or Volume
	Battery Plug	25612	Cable, 4 prong
	Dial Scale	25615	


EACH CORD THREE TURNS AROUND PULLEY
PULLEY ON CONDENSER SHAFT
EACH END KNOTTED AFTER PASSING THRO SLOTS IN EDGE OF PULLEY
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





* DO NOT USE OHMMETER TO CHECK FILAMENT CONTINUITY.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0V.	1.57V.DC	87V.DC	87V.DC	0V.	0V.	0V.	0V.	0V.
2	1A7GT	0V.	1.57V.DC	87V.DC	35V.DC	-1.4V.DC	87V.DC	0V.	87V.DC	0V.
3	1N5GT	0V.	1.57V.DC	87V.DC	87V.DC	0V.	0V.	0V.	0V.	0V.
4	1H5GT	0V.	1.57V.DC	62V.DC	87V.DC	-.02V.DC	0V.	0V.	-.02V.DC	0V.
5	3Q5GT	85V.DC	1.57V.DC	85V.DC	87V.DC	-.25V.DC	-6V DC	1.57V DC	0V.	

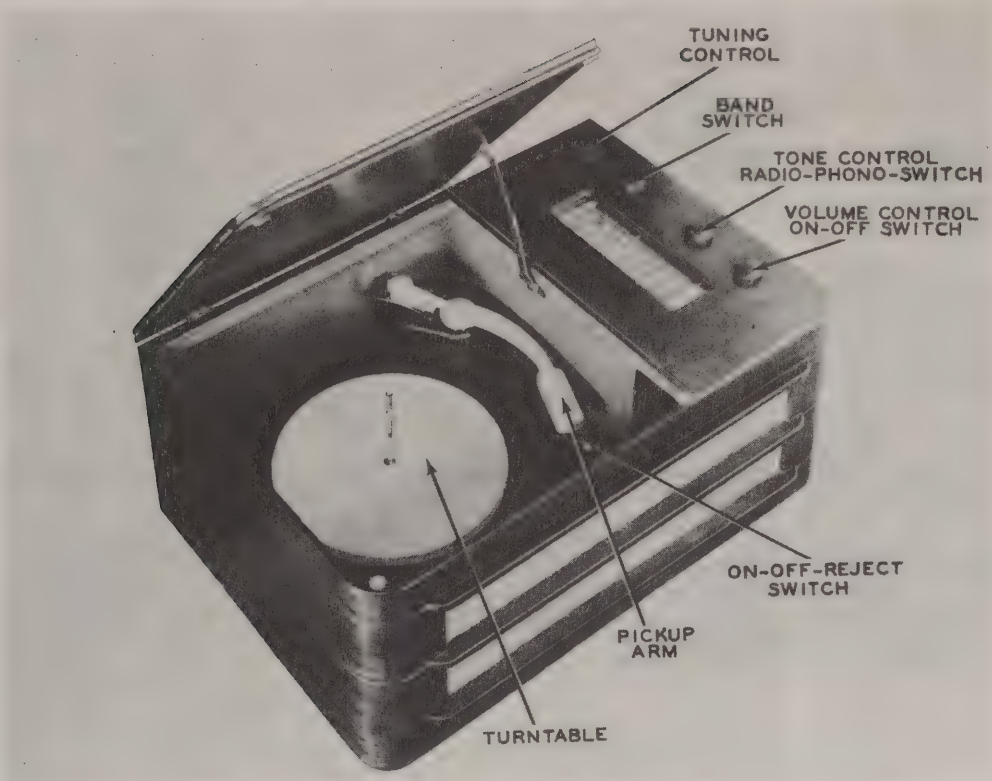
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0Ω	*	1.4MEG	1.4MEG	2.2MEG	I N F	*	I N F	2.2MEG
2	1A7GT	0Ω	*	1.4 MEG	1.5MEG	132KΩ	1.4MEG	*	1.7 MEG	1.4MEG
3	1N5GT	0Ω	*	1.4 MEG	1.4MEG	I N F	I N F	*	1.4MEG	1.4MEG
4	1H5GT	0Ω	*	2.2MEG	1.6MEG	500KΩ	15 M E G	*	1.4MEG	15M E G
5	3Q5GT	1.1 MEG	*	1.4MEG	1.4MEG	2.3MEG	510Ω	*	0Ω	

464-32

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TRUETONE MODEL D2645

TRADE NAME	Truetone Model D2645
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Combination Automatic Phono. - 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SA7 Mixer, 6SK7 1st IF Amp., 6SF7 2nd IF-Det-AVC, 6SJ7 1st AF, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	105-125 Volts AC — RATING - .370 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC — **SHORT WAVE** 9-15.6MC

ALIGNMENT INSTRUCTIONS

To set pointer, tune in 1400KC signal for maximum output. Attach pointer to drive cord at 1400KC mark on the dial scale. Volume control at maximum volume and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1	High side to pin #8 of 6SA7. Low side to chassis.	455KC	BC	High freq. end of dial. (Gang fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
100 MMF	High side to ant. lead. Low side to chassis.	1620KC	"	"	"	A5	" " " "
"	"	1400KC	"	Tune to maximum output.	"	A6	" " " "
"	"	600KC	"	"	"	A7	Rock dial and adjust for maximum output. Recheck A5 at 1620KC and A6 at 1400KC
400Ω	"	15.6 MC	SW	High freq. end of dial. (Gang fully open)	"	A8	Adjust for maximum output
"	"	14 MC	"	Tune to maximum output.	"	A9	Rock dial and adjust for maximum output.
100 MMF	"	1400KC	BC	"	"	A6	After chassis is reassembled in cabinet, adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	6SA7	6SA7	8R	
2	1st IF Amp.	6SK7	6SK7	8N	
3	2nd IF-Det.-AVC	6SF7	6SF7	7AZ	
4	1st AF	6SJ7	6SJ7	8N	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	450	45X346	FP346	DY-2x40-450/20-25	EL-330		UP9DJ53	● Filter
B	40	450							■ "
C	25	25							▲ Cath. Bypass
8	.004	600	D66402	TP407	S-6-004	TC-24	484-004	DT6D4	6V6 Plate Bypass
9	.1	400	D66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.004	400	D66402	TP407	S-6-004	TC-24	484-004	DT6D4	Tone Compensation
11	.025	400	D64253	TP451			404-025	LT4S25	Audio Plate Decoup.
12	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Screen Bypass
13	.005	400	D66502	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
14	.04	400	D66403	TP425	S-6-04	TC-14	484-04	DT4S4	Tone Compensation
15	.04	400	D66403	TP425	S-6-04	TC-14	484-04	DT4S4	Screen Bypass
16	.05	200	D66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
17	.04	400	D66403	TP425	S-6-04	TC-14	484-04	DT4S4	6SA7 Screen Bypass
18	.0005	500	D65501	TP403	S-6-0005	TC-35	1468-0005	DT6T5	RF Coupling
19	470	50	47X505	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Audio Plate Bypass
20	1.0	50	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	IF Filter Diode
21	33	500	47X471	MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	" " "
22	47	500	47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Tone Compensation
23	47	500	47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	IF Coupling
24	33	500	47X463	MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	Osc. Grid Capacitor
25	236	500	47X481						Fixed Padder
26	470	500	47X472	MCB223	MOS.5-44	MS-44	1469-00004	5R5Q4	Fixed Trimmer
27	330	500	47X474						Fixed Padder
28	47	500	47X473	MCB225	MOS.5-45	MS-45	1469-00005	5R5Q5	Fixed Trimmer
29	270	500	47X445	MC241	MO.5-33	MS-33	1468-0003	5W5T3	Loop Pr. Shunt

CONTROLS

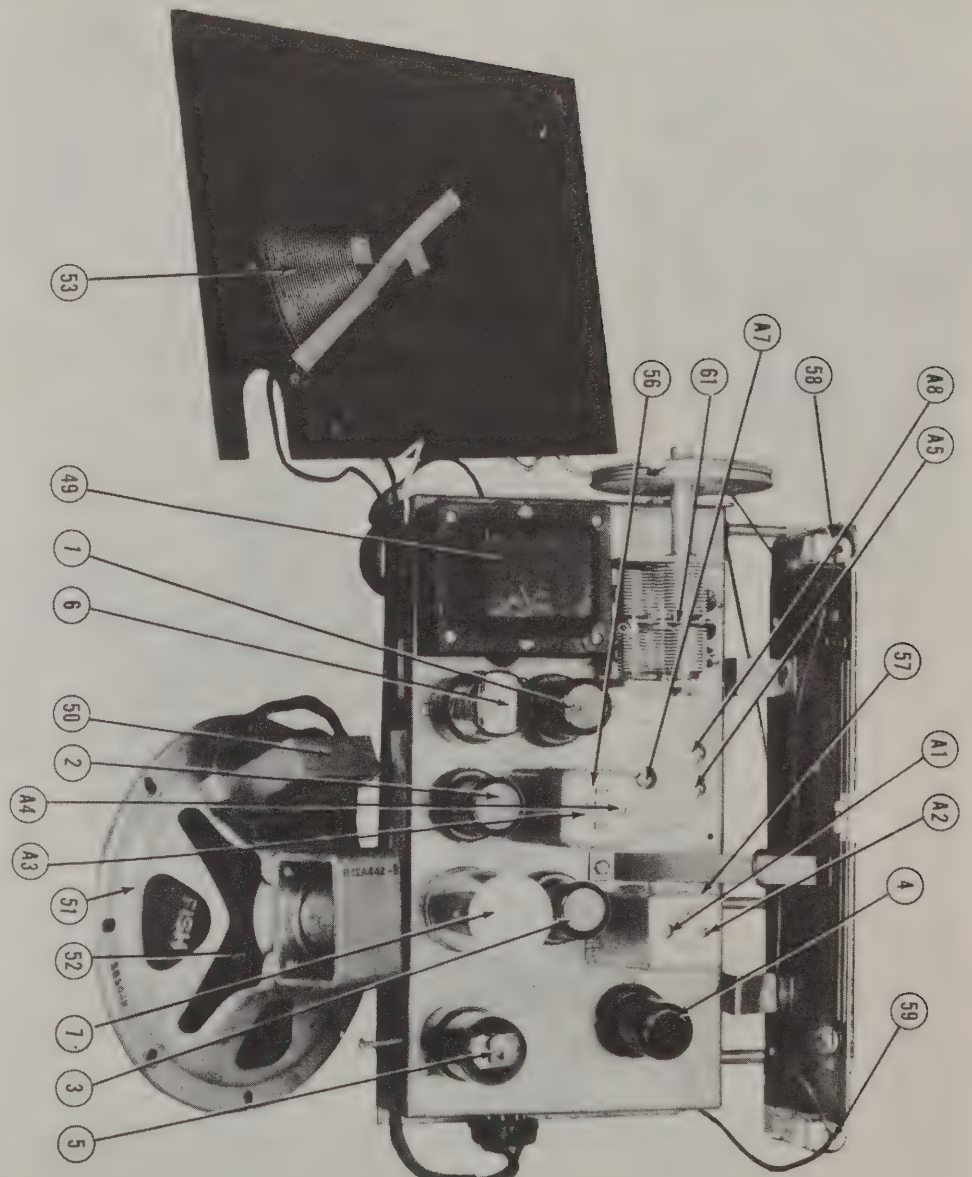
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
30A	500KΩ	1	36X358	TM227	D13-133X	AT-92*	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 30A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
31A	3 Meg.	1	40X276				Tone Control
B	Shaft		Not Req.				
31B	3 Meg.	1	40X281	UM135	D13-140	AM-67-Z	Tone Control-See Note 1
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 31C per instructions

*Use 100KΩ tap, cut other tap off
Note 1 - Attach original arm to tone control shaft to actuate radio-phono switch.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
32	2.2 Meg.	½	B35225	BTS-2.2 Meg	Red-Red-Grn. Converter Grid
33	39KΩ	1	C64393	BTA-39K	Or.-White-Or. Mixer Screen Dropping
34	39KΩ	½	B64393	BTS-39K	Or.-White-Or. Osc. Grid
35	39KΩ	1	C64393	BTA-39K	Or.-White-Or. IF Screen Dropping
36	2200Ω	½	B64222	BTS-2200	Red-Red-Red IF Plate Load
37	1 Meg.	½	B64105	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid
38	2.2 Meg.	½	B85225	BTS-2.2 Meg	Red-Red-Grn. AVC Network
39	47KΩ	½	B85473	BTS-47K	Yl.-Vl.-Or. IF Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONTINUED)

40	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
41	10 Meg.	½	B85106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
42	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
43	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load
44	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. 1st AF Plate Filter
45	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
46	270Ω	1	C84271	BW-1-270	Red-Vi.-Br. Output Cathode
47	2Ω	½	43X213	BW-½-2.2	Series Pilot Light
48	1800Ω	2	D84182	BT-2-1800	Br.-Gray-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDASON PART No.	
49	117V AC @ .370A	435V CT @ .080A	6.3VAC @ 2.0A		53X282			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
50	6300Ω	3.4Ω	500Ω	1.25Ω	Part of 12A442	A-3849	T-13S371		†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
51	PM	3.4Ω	12A442	ST-108		
	CONE DIA.	VC DIA.				
52	8"	11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
53	"B" Loop Ant	.5Ω	3Ω	9A1631		
54	"D" Ant. Coil	1Ω	0Ω	9A1812	14-1044	
55A	"B" Osc. "	1Ω	2Ω	9A1813		Items 55A, 55B wound on same form
B	"D" " "		0Ω	9A1813		
56	Input IF	2Ω	20.5Ω	9A1814	16-6658	
57	Output IF	19.8Ω	18.2Ω	9A1815	16-6660	

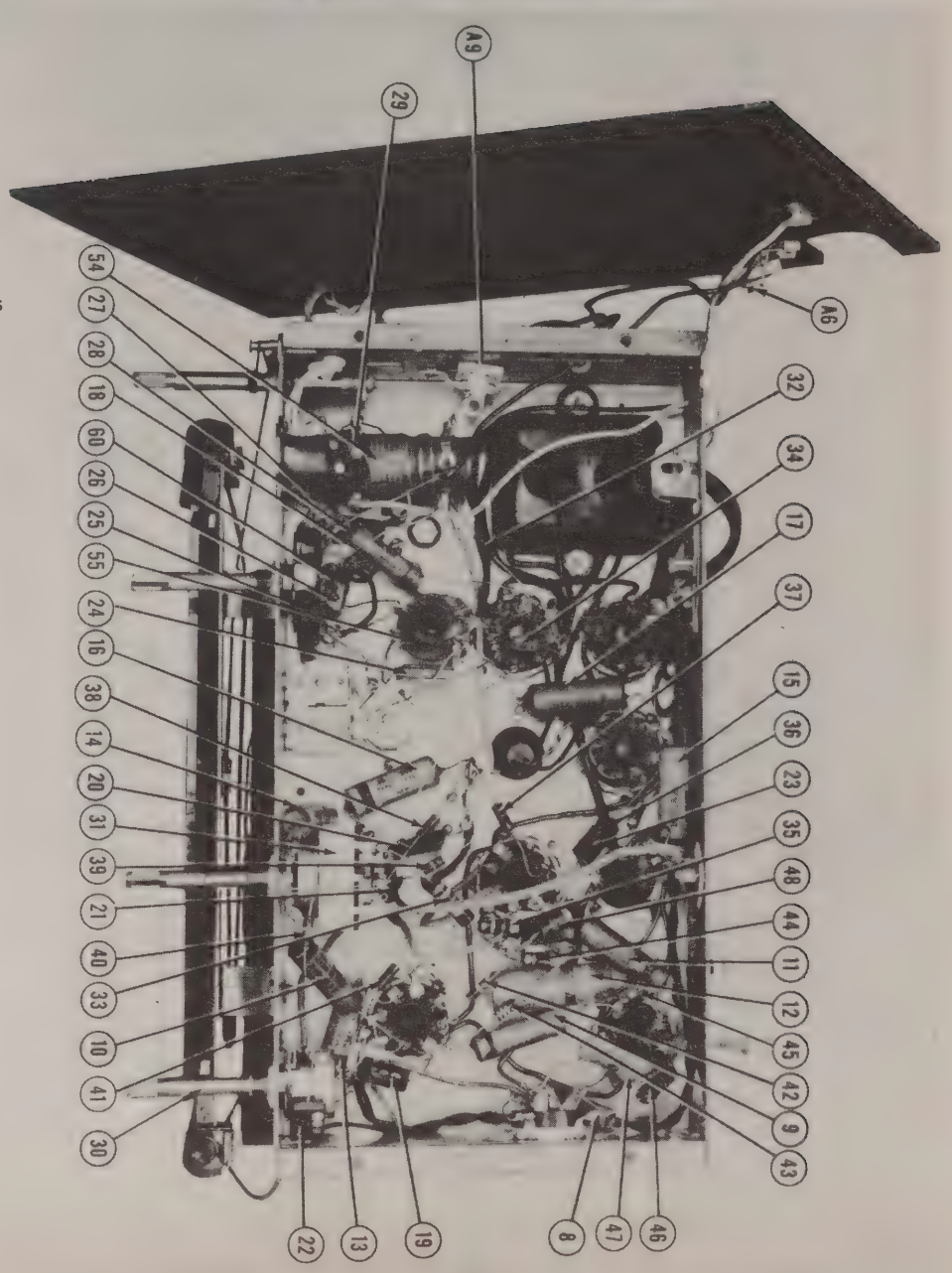
DIAL LIGHT

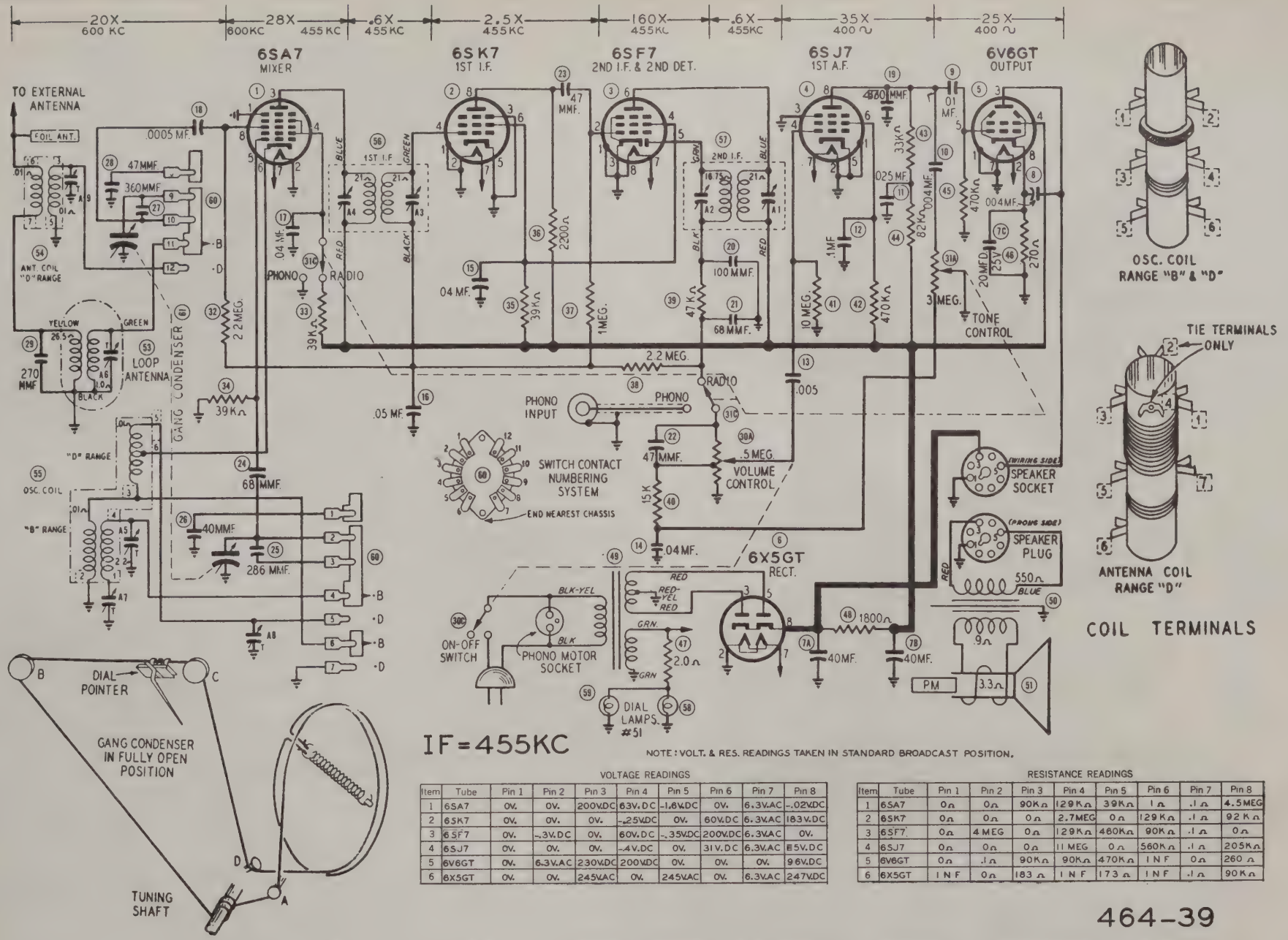
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
58	Bayonet	6-8	0.15	Brown			Type 47
59	"	6-8	0.15	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
S0	Switch	2A359	Band Change
S1	Tuning Cap.	14A178	2 Gang Var. Cap. with Drive Pulley
A5	Trimmer Cap.	17A109	BC Osc. Adj. 2.5-35 MMF
A8	Trimmer Cap.		SW " " " "
A6	Trimmer Cap.	17A123	BC Ant. Adj. 1-12 MMF
A7	Padder Cap.	17A155	BC Osc. Pad 350-430 MMF
A9	Trimmer Cap.	17A164	SW Ant. Adj. 5-50 MMF
	Pickup Cartridge		Astatic L-75 or equivalent
	Knob	10A578	Tuning
	"	10A579	Off-On, Volume
	"	10A580	Tone, Radio-Phono
	"	10A581	SW-BC

CHASSIS—BOTTOM VIEW





NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V.	0V.	200V.DC	63V. DC	-1.6V.DC	0V.	6.3V.AC	-.02VDC
2	6SK7	0V.	0V.	0V.	-.25V.DC	0V.	60V.DC	6.3V.AC	183V.DC
3	6SF7	0V.	-.3V.DC	0V.	60V.DC	-.35V.DC	200V.DC	6.3V.AC	0V.
4	6SJ7	0V.	0V.	0V.	-.4V.DC	0V.	31V.DC	6.3V.AC	85V.DC
5	6V6GT	0V.	6.3V.AC	230V.DC	200V.DC	0V.	0V.	0V.	96V.DC
6	6X5GT	0V.	0V.	245V.AC	0V.	245V.AC	0V.	6.3V.AC	247VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0Ω	0Ω	90KΩ	129KΩ	39KΩ	1Ω	.1Ω	4.5MEG
2	6SK7	0Ω	0Ω	0Ω	2.7MEG	0Ω	129KΩ	.1Ω	92KΩ
3	6SF7	0Ω	4MEG	0Ω	129KΩ	460KΩ	90KΩ	.1Ω	0Ω
4	6SJ7	0Ω	0Ω	0Ω	11MEG	0Ω	560KΩ	.1Ω	205KΩ
5	6V6GT	0Ω	.1Ω	90KΩ	90KΩ	470KΩ	INF	0Ω	260Ω
6	6X5GT	INF	0Ω	183Ω	INF	173Ω	INF	.1Ω	90KΩ

464-39

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ULTRADYNE
MODEL L-46

ULTRADYNE
MODEL L-46

ULTRADYNE MODEL L-46

TRADE NAME	Ultradyne Model L-46
MANUFACTURER	Regal Electronics Corp., 20 W. 20th St., New York, N.Y.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 14Q7 Converter, 14A7 1st IF Amp., 14A7 2nd IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	117 Volts AC-DC — RATING - .260 Amps. @ 117V AC
TUNING RANGE—BROADCAST	550-1650KC — **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Before aligning receiver tune to high freq. end of dial and set pointer at 1650. Use isolating transformer if available. If not, connect capacitor in series with low side of signal generator to chassis. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1	High side to ant stator section of tuning gang. Low side to chassis.	455KC	High freq. end of dial (gang fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF	High side to ant. lead. Low side to chassis.	1450KC	Set point. to 1450 on dial.	"	A5	" " " "
"	"	1550KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ULTRADYNE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	6AL	
2	1st IF Amp.	14A7	14A7	8V	
3	2nd IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	35A5	35A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ULTRADYNE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150		FP214	DY-2x50-150	EL-25	AF1010D	UP6BJ34	■ Filter
B	50	150							▲ "
8	.005	600		TP408	S-8-005	TC-25	684-005	DT6D5	35A5 Plate Bypass
9	.01	200		TP421	S-4-01	TC-11	4e4-01	DT4S1	Audio Coupling
10	.1	300		TP428	S-4-1	TC-1	4e4-.1	DT4P1	Audio Plate Decoup.
11	.01	200		TP421	S-4-01	TC-11	4e4-01	DT4S1	Audio Coupling
12	.05	400		TP426	S-4-05	TC-15	4e4-05	DT4S5	RF Bypass Pwr. Supp.*
13	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.05	400		TP426	S-4-05	TC-15	4e4-05	DT4S5	Plate Filter
15	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
16	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
17	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
18	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	1st IF Screen Bypass
19	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
20	.005	400		TP408	S-8-005	TC-25	484-005	DT6D5	Ant. Coupling
21	150	500		MC236	MO.5-315	1FM-315	1468-00015	5W5T15	Audio Plate Bypass
22	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	RF Bypass Diode
23	500	500		MC245	MO.5-35	1FM-35	1468-0005	5W5T5	IF Coupling
24	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Osc. Grid Capacitor
25	240	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Fixed Padder *

*Not used in all models.

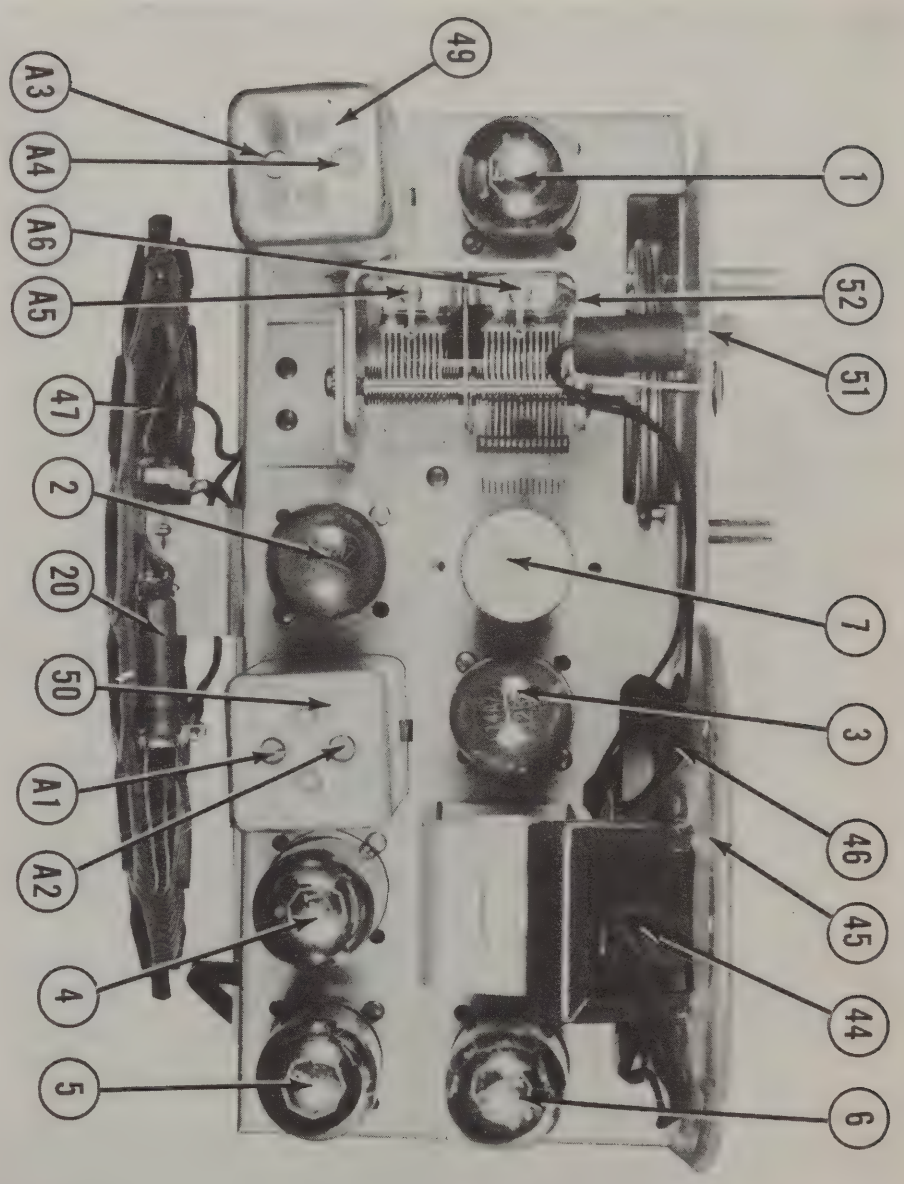
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ULTRADYNE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	500KΩ	1	D-9910	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 26A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ULTRADYNE PART No.	IRC PART No.	IDENTIFICATION CODES
27	25KΩ	½		BTS-22K	Red-Grn.-Or. Osc. Grid
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. " "
30	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. " "
31	1000Ω	½		BTS-1000	Br.-Blk.-Red 1st IF Cathode
32	500Ω	½		BTS-470	Grn.-Blk.-Br. Decoupling
33	500Ω	½		BTS-470	Grn.-Blk.-Br. "
34	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st IF Screen Dropping
35	10KΩ	½		BTS-10K	Br.-Blk.-Or. 1st IF Plate Load
36	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. 2nd IF Grid
37	500Ω	1		BTA-470	Grn.-Blk.-Br. " " Cathode
38	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
39	250KΩ	½		BTS-220K	Red-Grn.-Yl. " " Plate Load
40	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Filter
41	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
42	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
43	500Ω	1		BTA-470	Grn.-Blk.-Br. Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ULTRADYNE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
44	2.000Ω	3.35Ω	170Ω	.5Ω		A-3876	T-14S82		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ULTRADYNE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
45	PM	3.35Ω		ST-107		
	CONE DIA.	VC DIA.				
46	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

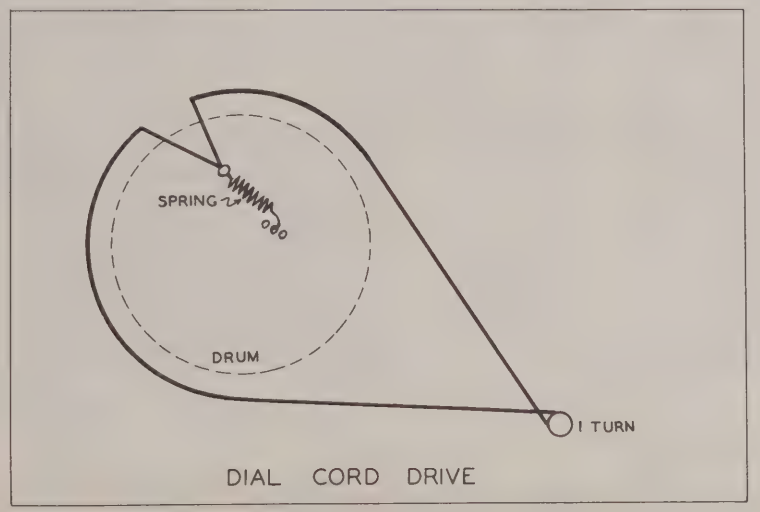
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ULTRADYNE PART No.	MEISSNER PART No.	
47	Loop Ant.	.1Ω	1.1Ω			
48	Osc. Coil	.3Ω	3.2Ω		14-1040	
49	Input IF	23.3Ω	23.5Ω		16-6658	
50	Output IF	23.7Ω	24Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ULTRADYNE PART No.		
51	Bayonet	6-8	0.15	Brown			Type 47

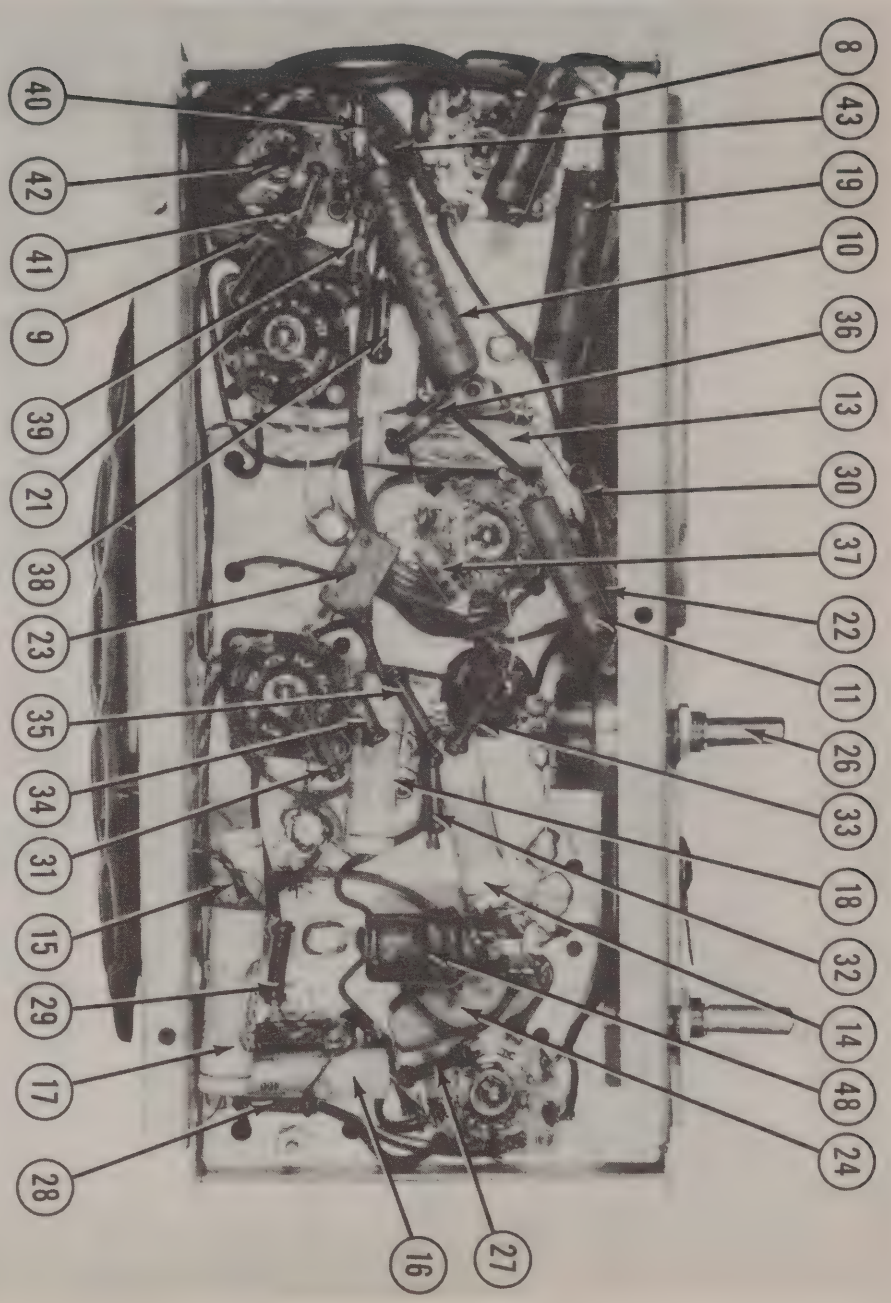
MISCELLANEOUS

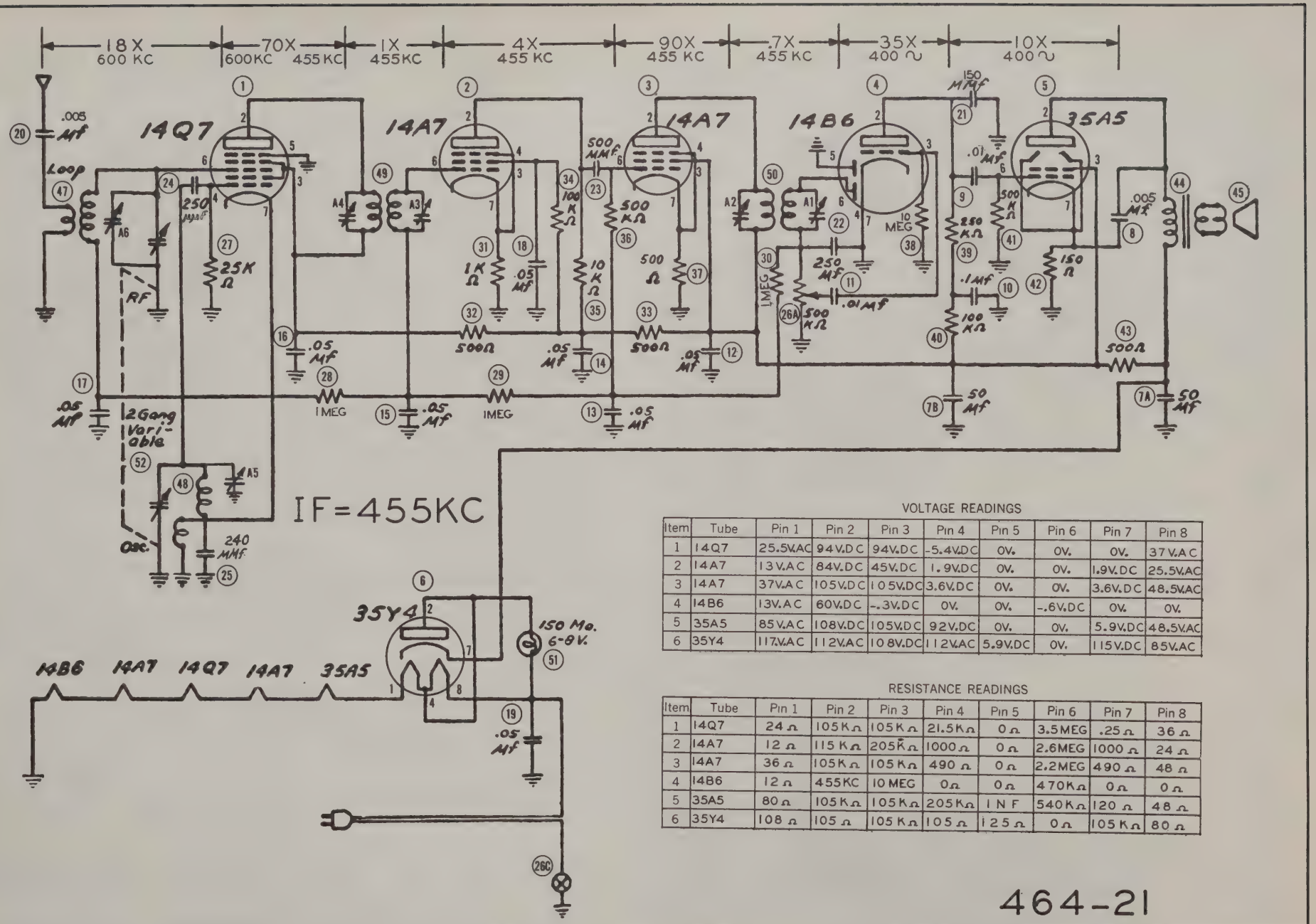
ITEM No.	PART NAME	ULTRADYNE PART No.	NOTES
52	Tuning Cap.		2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25.5V.AC	94V.DC	94V.DC	-5.4V.DC	0V.	0V.	0V.	37V.AC
2	14A7	13V.AC	84V.DC	45V.DC	1.9V.DC	0V.	0V.	1.9V.DC	25.5V.AC
3	14A7	37V.AC	105V.DC	105V.DC	3.6V.DC	0V.	0V.	3.6V.DC	48.5V.AC
4	14B6	13V.AC	60V.DC	-.3V.DC	0V.	0V.	-.6V.DC	0V.	0V.
5	35A5	85V.AC	108V.DC	105V.DC	92V.DC	0V.	0V.	5.9V.DC	48.5V.AC
6	35Y4	117V.AC	112V.AC	108V.DC	112V.AC	5.9V.DC	0V.	115V.DC	85V.AC

RESISTANCE READINGS

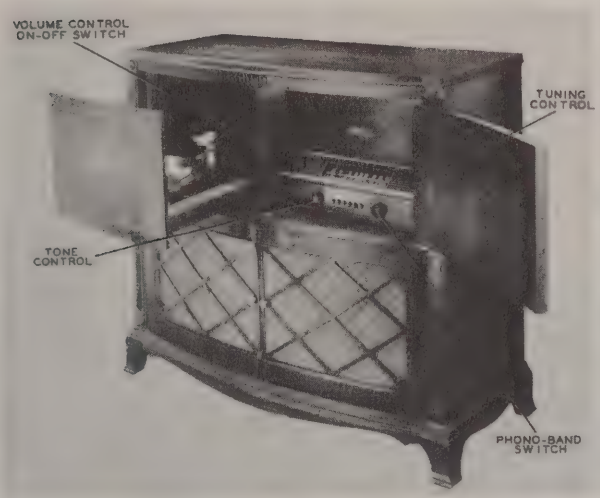
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24 Ω	105KΩ	105KΩ	21.5KΩ	0Ω	3.5MEG	.25Ω	36Ω
2	14A7	12Ω	115KΩ	205KΩ	1000Ω	0Ω	2.6MEG	1000Ω	24Ω
3	14A7	36Ω	105KΩ	105KΩ	490Ω	0Ω	2.2MEG	490Ω	48Ω
4	14B6	12Ω	455KC	10MEG	0Ω	0Ω	470KΩ	0Ω	0Ω
5	35A5	80Ω	105KΩ	105KΩ	205KΩ	INF	540KΩ	120Ω	48Ω
6	35Y4	108Ω	105Ω	105KΩ	105Ω	125Ω	0Ω	105KΩ	80Ω

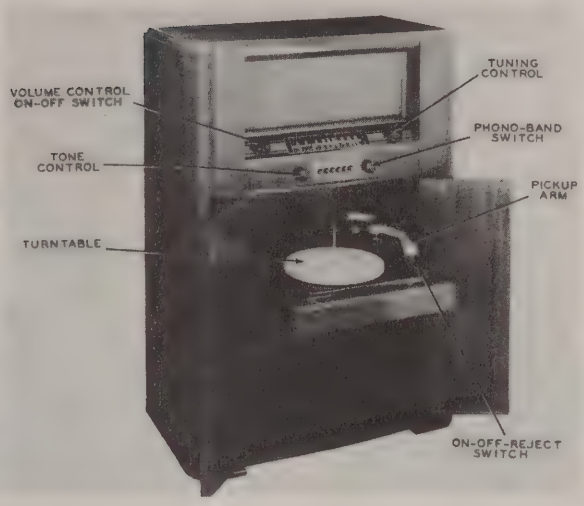
464-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WESTINGHOUSE
MODELS H-107, H-108, H-110, H-111





WESTINGHOUSE MODELS H-107 & H-110

TRADE NAME	Westinghouse Models H-107, H-108, H-110, H-111
MANUFACTURER	Westinghouse Electric Corp., Home Radio Div., Sunbury, Pa.
TYPE SET	AC Combination Automatic Phono. - Superheterodyne Receiver with Self Contained Loop Antenna & Automatic Tuning.
TUBES (SEVEN)	Types, 6SK7 RF Amp., 6SA7 Translator, 6SK7 IF Amp., 6SF7 Det.-AVC-AF, 2 - 6Y6G Power Output, 5U4G Rectifier.
POWER SUPPLY	105-120 Volts AC RATING - 1.08 Amps. @ 117V AC
TUNING RANGE—BROADCAST	530-1600KC **SHORT WAVE** 4.8-18MC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) 6SA7. Low side to chassis.	455KC	BC	Low freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	High side to pin #4 (grid) 6SK7 (RF). Low side to chassis.	"	"	"	"	A5	" " minimum "
400Ω res.	High side to SW ant. terminal. Low side to chassis.	16MC	SW	16MC	"	A6,A7.	Adjust for maximum output. If two peaks are obtained when adjusting A6, minimum capacity peak is correct.
200 MMFD	High side to BC ant. terminal. Low side to chassis.	1600KC	BC	1600KC	"	A8	Adjust for maximum output
"	"	1400KC	"	Tune in 1400 KC signal.	"	A9	" " " "
"	"	600KC	"	Tune in 600KC signal.	"	A10	Rock dial and adjust for maximum output. Repeat adjustments A8 at 1600KC and A10 at 600KC
	Loop	1400KC	"	Tune in 1400 KC signal.	"	A9	Place chassis near cabinet, connect loop to loop terminals. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop. Adjust A9 for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WESTINGHOUSE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Translator	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SF7	6SF7	7AZ	
5	Power Output	6Y6G	6Y6G	7AC	
6	Power Output	6Y6G	6Y6G	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

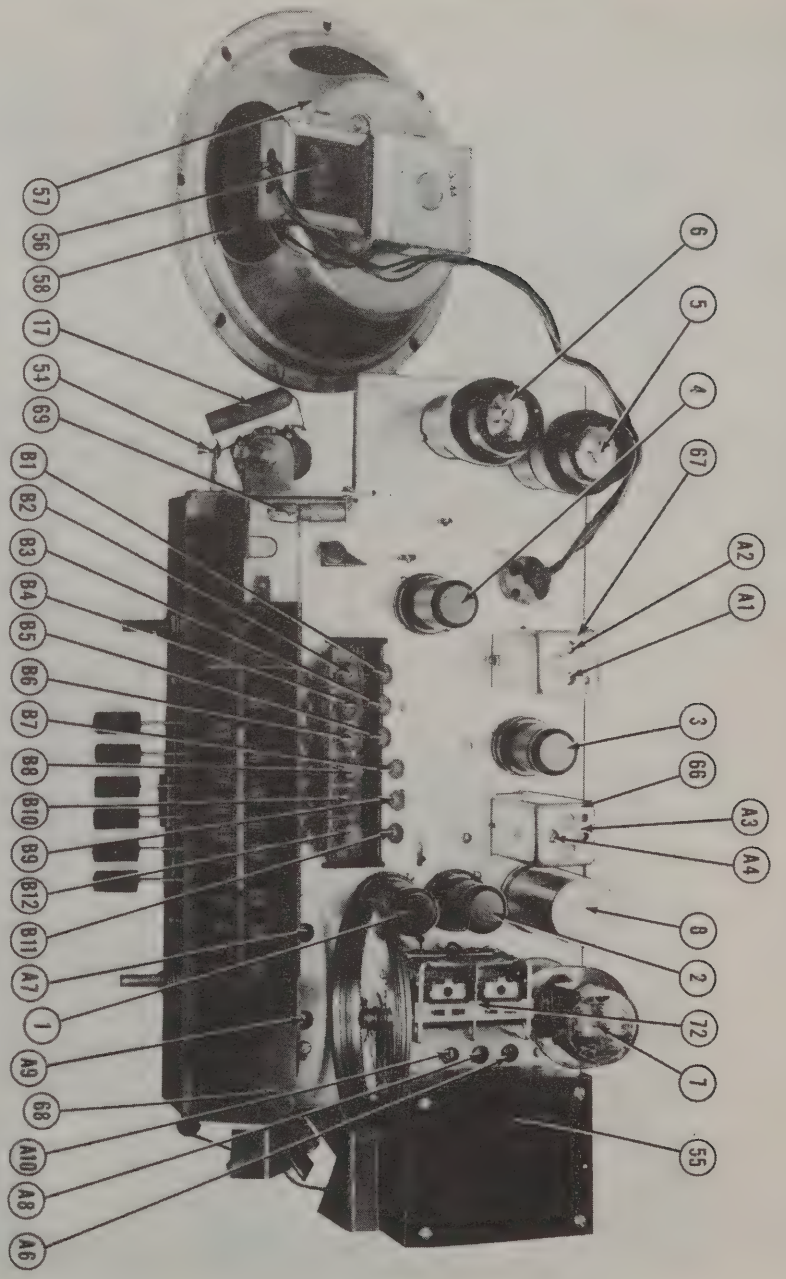
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WESTINGHOUSE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	40	350	V-3216	FP429	DY-40+30+10-450/20-25	EL-424		UP9DJ53	◆ Filter
B	40	350							■ "
C	5	250							▲ "
D	20	25							Cath. Bypass
9	20	25	V-3236	TC26	M-25-25	TA-25	PRS25-25	BR202A	Audio Cath. Bypass
10A	.05	600		TP415	MPW-6-05	TC-15		MD6S5	Line Bypass
B	.05	600		TP415	MPW-6-05	TC-15		MD6S5	" "
11	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	6Y6 Plate Bypass
12	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	" " "
13	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
14	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Audio Screen Bypass
15	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Plate Decoup.
16	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Tone Compensation
17	.03	400		TP424	S-6-03	TC-13	484-03	DT4S3	" "
18	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
19	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Phono Bypass
20	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	AVC Filter
21	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	IF Screen Bypass
22	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Screen Bypass
23	150	500		MC236	MO.5-315	1FM-315	1468-00015	5W5T15	Audio Plate Bypass
24	150	500		MC236	MO.5-315	1FM-315	1468-00015	5W5T15	RF Coupling SW
25	47	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
26	33	500			MO.5-43	MS-43		5W5Q3	RF Coupling BC
27	180	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Osc. Feedback
28	2200	300		MC457	MW.5-22	1FM-22	1467-002	1W5D2	Osc. Cathode
29	2800	300		MC461	MW.5-23	1FM-23	1467-003	1W5D3	Fixed Padder SW
30	68	500		MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	RF Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WESTINGHOUSE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
31A	2 Meg.	1	V-3221	TM254	D13-139X	T-120	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 31A per instructions
C	Switch		Not Req.	M26	41	SW-A	" " " " "
32A	2 Meg.	1	V-3222	MR55	D13-139	M-66-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 32A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WESTINGHOUSE PART No.	IRC PART No.	
33	6800Ω	2		BT-2-6800	Blue-Gray-Red RF Plate Load
34	10KΩ	2		BT-2-10K	Br.-Blk.-Or. RF Screen Dropping
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
36	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
37	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
38	22KΩ	½		BTS-22K	Red-Red-Or. IF Screen Dropping
39	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
40	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode Load
41	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
42	680Ω	½		BTS-680	Blue-Gray-Br. 1st AF Cathode
43	100KΩ	½		BTS-100K	Br.-blk.-Yl. 1st AF Plate Load
44	47KΩ	½		BTS-47K	Yl.-Vi.-Or. 1st AF Plate Filter
45	680KΩ	½		BTS-680K	Blue-Gray-Yl. Feedback
46	100Ω	½		BW-½-100	Br.-Blk.-Br. Output Grid Suppressor
47	100Ω	½		BW-½-100	Br.-Blk.-Br. Output Grid Suppressor
48	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid Load
49	33Ω	½		BW-½-33	Or.-Or.-Blk. Parasitic Suppressor
50	33Ω	½		BW-½-33	Or.-Or.-Blk. " "
51	120Ω	2		BW-2-120	Output Cathode
52	4700Ω	2		BT-2-4700	Yl.-Vi.-Red Output Screen Dropping
53	15KΩ	5		AB-15K	Br.-Grn.-Or. Bleeder
54	10KΩ	½		BTS-10K	Br.-Blk.-Or. Tone Compensation

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	WESTINGHOUSE PART No.	STANCOR PART No.	THORDASON PART No.	
55	117 VAC @ 1.04A	530 VCT @ .185A	5.0 VAC @ 2.9A	6.1 VAC @ 4.0A	V-3250			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WESTINGHOUSE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
56A	1300Ω	3.6Ω	76Ω	.5Ω					Models H-107 & H-108
56B	930Ω	3.7Ω	72Ω	.8Ω					Models H-110 & H-111

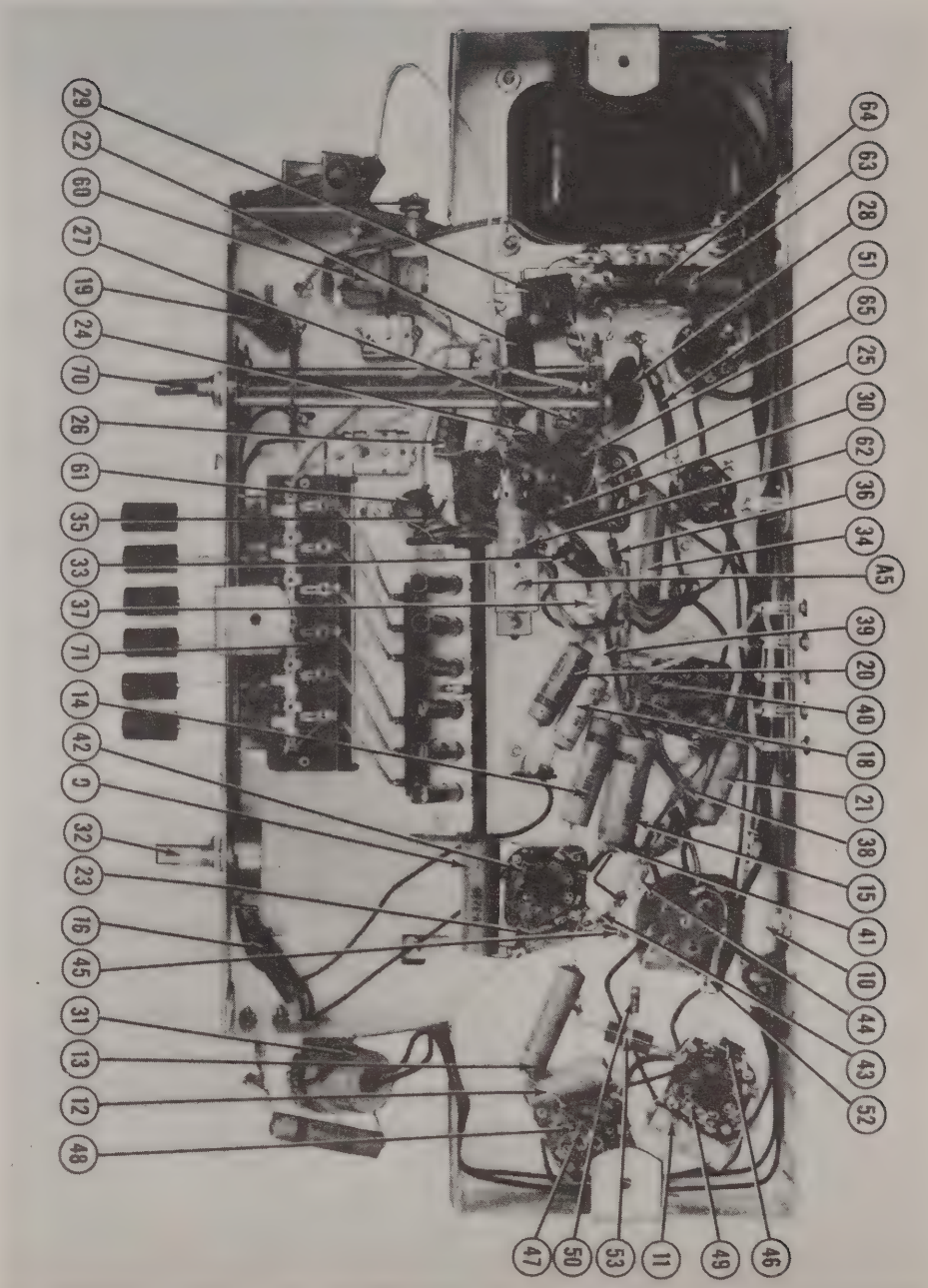
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	WESTINGHOUSE PART No.	JENSEN PART No.		
57A	150Ω	3.6Ω	V-3244			Models H-107 & H-108
B	150Ω	3.7Ω	V-3620			" H-110 & H-111
	CONE DIA.	VC DIA.				
58A	8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
B	9½"	1"	" "	"	"	" " "

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	WESTINGHOUSE PART No.	MEISSNER PART No.	
59	Loop Ant.	0Ω				
60	BC Ant.Coil		3Ω			
61	SW " "	.4Ω	0Ω		14-1044	
62	BC RF "	19.8Ω	58Ω			
63	" Osc. "		7.8Ω			Items63, 64 on same form
64	SW " "		0Ω			
65	Osc.Cath."	4Ω				
66	Input IF	15.9Ω	15Ω		16-6658	
67	Output IF	16.6Ω			16-6670	

CHASSIS—BOTTOM VIEW



DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA WESTINGHOUSE PART No.		INSTALLATION NOTES
68	Bayonet	6-8	0.25	Blue			Type 44
69	"	6-8	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
70	Switch		Phono-Band-Tuning
71	Auto. Tuning		Complete Assby.
72	Tuning Cap.		2 Gang Tuning Cap.

PUSH-BUTTON ADJUSTMENTS

The six push buttons and associated adjustments from left to right (facing front of receiver) cover the following frequency ranges: 530 to 900KC, 530 to 900KC, 530 to 900KC, 900 to 1600KC, 900 to 1600KC, and 900 to 1600KC. To set up six different stations for automatic tuning, proceed as follows:

1 - Turn on radio and allow at least 5 minutes to warm up before making adjustment.

2 - List six desired stations arranged in order from low to high frequencies.

3 - Set phono-band switch to broadcast band manual tuning, tune in first station on list (lowest frequency).

4 - Set phono-band switch for push-button tuning and depress button to extreme left (viewed from front). Adjust B1 to tune in station. Lowest frequency is with screw all the way in.

5 - Adjust B2 for maximum volume of station.

6 - Repeat adjustments.

7 - Follow same procedure for setting up remaining push buttons. Always select a station within frequency range of push button and associated adjustments. B3, B5, B7, B9, B11 are adjusted to tune in station. B4, B6, B8, B10, B12 are adjusted for maximum volume of station.

DISASSEMBLY INSTRUCTIONS FOR MODELS H110 AND H111

1 - Remove the volume control and the tuning control push-on type knobs. Remove the tone control push-on type knob and felt washer; also the phono-band switch knob and felt washer.

2 - Remove the set screw from the speaker plug. Remove the speaker plug from the top of the chassis.

3 - Remove the phono-pickup jack from the back of the chassis.

4 - Remove the phono-motor plug from the back of the chassis.

5 - Remove the external antenna covered wire from the back of the chassis by loosening the two left-hand screws of the terminal board.

6 - Remove the three hex bolts and washers from the chassis board. Note: The board does not have to be removed. The bolts are easily removed from the top inside the record compartment.

7 - Remove the chassis.

8 - Remove four screws holding speaker to the cabinet. Remove the speaker.

DISASSEMBLY INSTRUCTIONS FOR MODELS H107 AND H108

1 - Remove the following push-on type knobs: Volume control, tuning control, tone control, and phono-band switch.

2 - Remove the two felt washers from the tone control and phono-band switch shafts.

3 - Disconnect the loop antenna cord from back of chassis.

4 - Remove screw from speaker plug. Remove speaker plug from top of chassis.

5 - Disconnect phono-motor plug from back of chassis.

6 - Disconnect phono-pickup jack from the back of chassis.

7 - Remove the hex bolts holding chassis to the cabinet. Remove the chassis.

8 - Remove the four wood screws holding the speaker to the cabinet mounting board. Remove speaker.

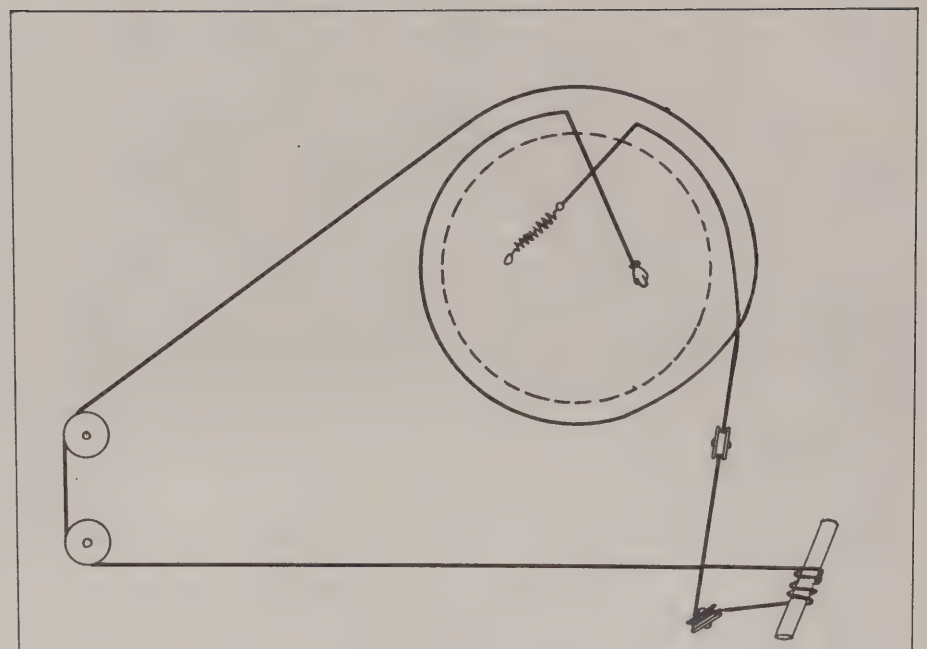
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	-.05V.DC	0V.	97V. DC	6.2V.AC	133V.DC
2	6SA7	0V.	0V.	215V.DC	97V.DC	-.15V.DC	0V.	6.2V.AC	-.15V. DC
3	6SK7	0V.	0V.	0V.	-.2V.DC	0V.	107V. DC	6.2V.AC	215V.DC
4	6SF7	0V.	0V.	1.1V. DC	28V.DC	0V.	28V.DC	6.2V.AC	0V.
5	6Y6G.	205V.DC	0V.	205V.DC	142V.DC	0V.	0V.	6.2V.AC	14.5V.DC
6	6Y6G	0V.	0V.	205V.DC	142V.DC	0V.	0V.	6.2V.AC	14.5V.DC
7	5U4G	0V.	250V.DC	0V.	265V.AC	0V.	265V.AC	0V.	250V.DC

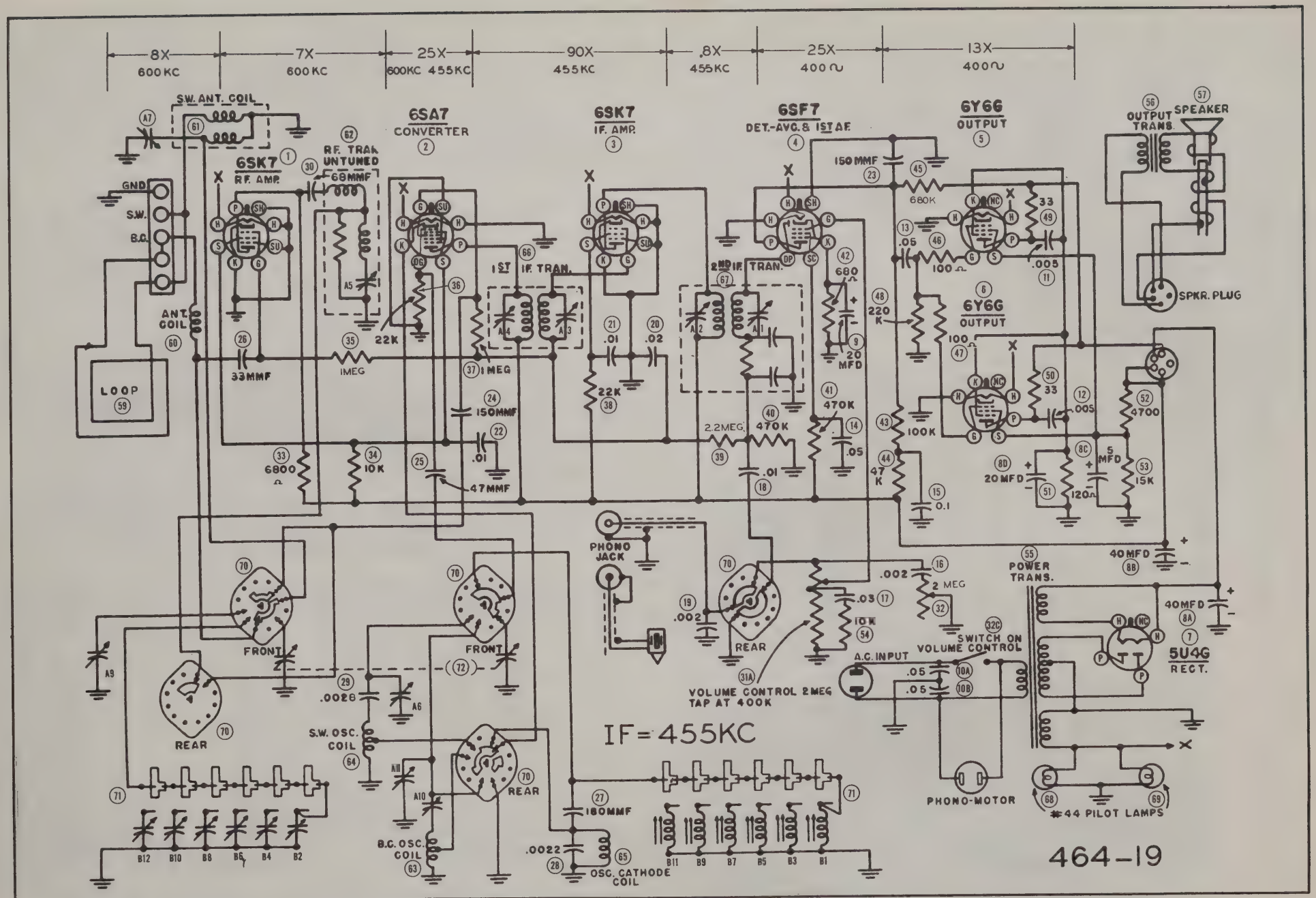
NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	4 MEG	0Ω	30KΩ	0Ω	27KΩ
2	6SA7	0Ω	0Ω	20KΩ	30 KΩ	22 KΩ	3Ω	0Ω	4 MEG
3	6SK7	0Ω	0Ω	0Ω	3 MEG	0Ω	42KΩ	0Ω	16.5KΩ
4	6SF7	0Ω	2 MEG	625Ω	440KΩ	560KΩ	140KΩ	0Ω	0Ω
5	6Y6G	16.5KΩ	0Ω	16.5KΩ	12.5KΩ	255 KΩ	255KΩ	0Ω	120Ω
6	6Y6G	255KΩ	0Ω	16.5KΩ	12.5KΩ	255 KΩ	0Ω	0Ω	120Ω
7	5U4G	INF	16.5KΩ	INF	360Ω	INF	340Ω	INF	16.5 KΩ

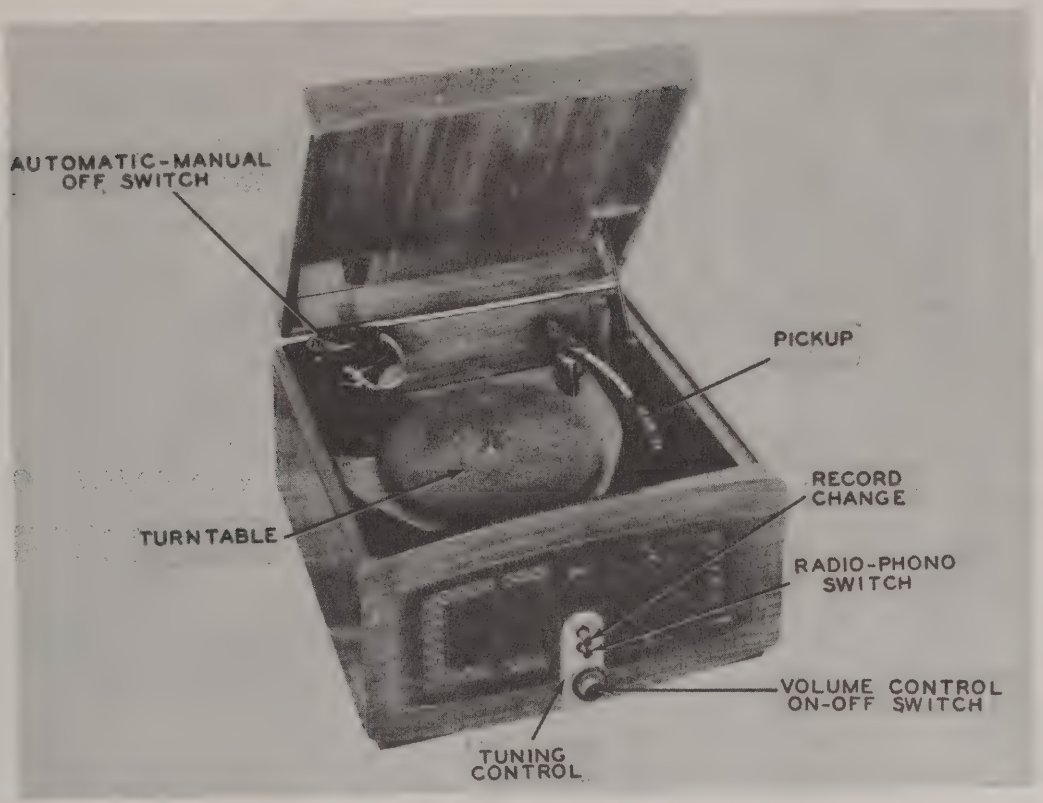


DIAL CORD DRIVE



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ZENITH
MODELS 5R080-5R086

ZENITH
MODELS 5R080-5R086

ZENITH MODEL 5R086 (Ch. 5C04)

TRADE NAME	Zenith Models 5R080-5R086 (Chassis Nos. 5C02, 5C02Z-5C04)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Illinois
TYPE SET	AC Combination Phono-Superheterodyne Radio - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC RATING - .235 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1620KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) 12SA7. Low side to B-.	455KC	1600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, connect isolating capacitor in series with low side to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
	Loop	1600KC	"	"	A5	Adjust for maximum output. Connect output of signal generator to single turn loop and radiate signal into receiver loop (wavemagnet).
	"	1400KC	1400KC	"	A6	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	22-1381	FP357	DY-3x40-150	EL-340	AF888D	UP6CJ44	▲ Filter
B	40	150							■ "
C	40	150							"
7	.05	200	22-1017	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
8	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5	Shield Ground
9	.02	400	22-1379	TP423	S-4-02	TC-12	484-.02	DT4S2	50L6 Plate Bypass
10	.01	600	22-196	TP410	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
11	.0005	600	22-854	TP403	S-6-0005	TC-35	1468-.0005	DT6T5	Audio Plate Bypass
12	.01	600	22-669	TP404	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
13	.01	200	22-826	TP421	S-4-01	TC-11	484-.01	DT4S1	Tone Compensation
14	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
15	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Isolating
16	200	600	22-953	MC237	M0.5-32	1FM-32	1468-.0002	5W5T2	RF Bypass Diode

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	63-1348				Volume Control & SW

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
18	220Ω	½	63-579	BW-½-220	Red-Red-Br. Parasitic Suppressor
19	10KΩ	½	63-589	BTS-10K	Br.-Blk.-Or. Osc. Grid
20	15 Meg.	½	63-976	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
21	2.2 Meg.	½	63-600	BTS-2.2 Meg	Red-Red-Grn. AVC Network
22	22KΩ	½	63-644	BTS-22K	Red-Red-Or. Tone Compensation
23	4.7 Meg.	½	63-602	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
24	470KΩ	½	63-597	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
25	470KΩ	½	63-597	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½	63-686	BW-½-150	Br.-Grn.-Br. Output Cathode
27	680Ω	1	63-1221	BTA-680	Blue-Gray-Br. Filter
28	100Ω	1	63-1220	BW-1-100	Br.-Blk.-Br. "
29	22Ω	½	63-1219	BW-½-22	Red-Red-Blk. Surge Limiter

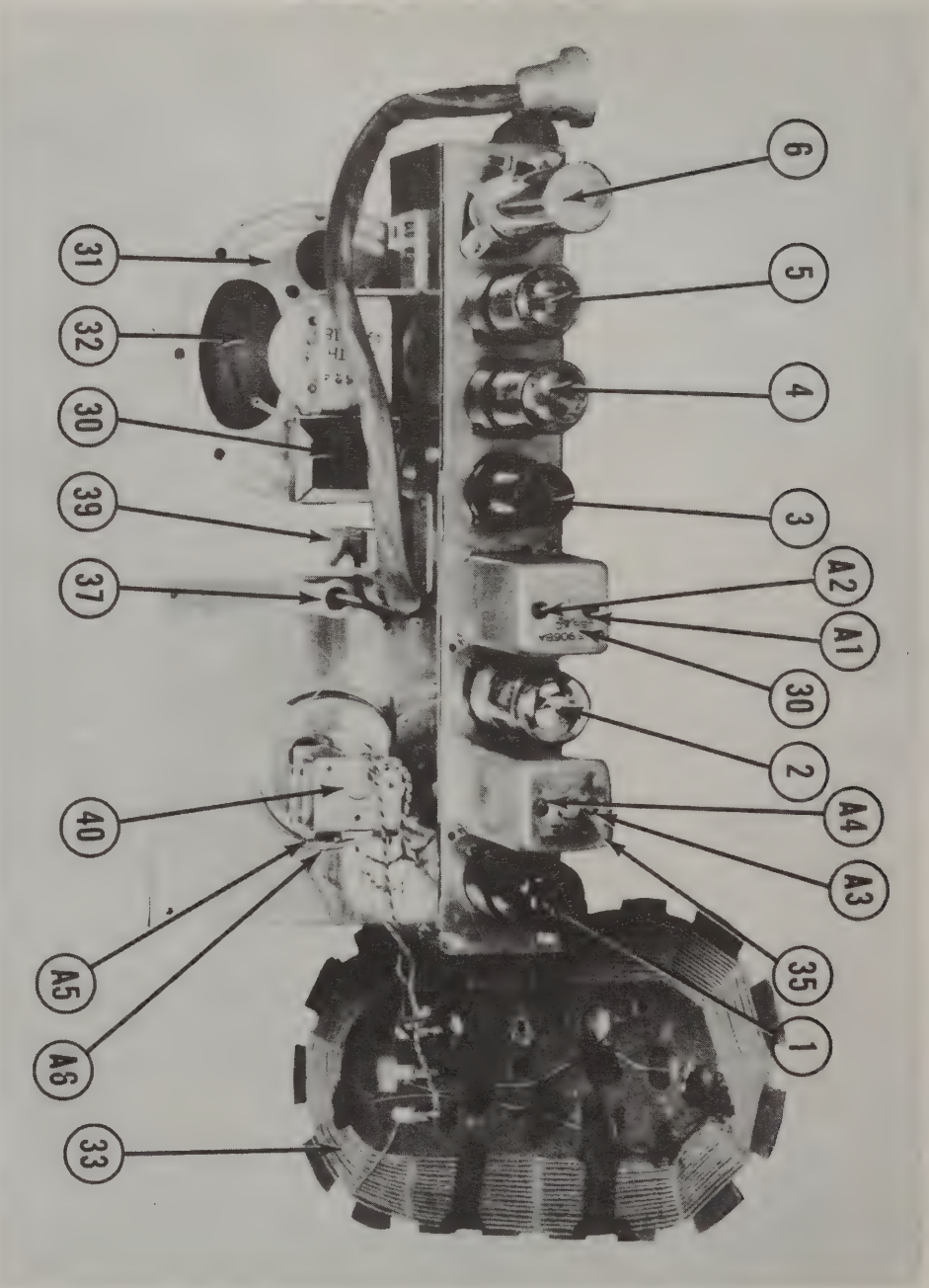
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
30	2200Ω	3.2Ω	170Ω	.5Ω	Part of 49-518	A-3876†	T-14S82†		†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: ZENITH PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
31	PM	3.2Ω	49-518	ST-107*		*Fabricate new mounting bracket
	CONE DIA.	VC DIA.				
32	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
33	Loop Ant.	0Ω	1Ω	S11296		Part number S12677 used on 5C02Z chassis.
34	Osc. Coil	.5Ω	9Ω	S11284	14-1040	" " S12652 " " " "
35	Input IF	24Ω	23.8Ω	95-919	16-6658	
36	Output IF	39.8Ω	39.8Ω	95-906	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ZENITH PART No.		INSTALLATION NOTES
37	Bayonet	6-8	0.15	Brown	100-67		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
38	Switch	85-337	Phono-Radio
39	Switch	85-338	Reject (used on Ch. 5C03 & 5C02Z only)
40A	Tuning Cap.	22-1419	2 Gang Var. Cap. (Ch. 5C02)
B	" "	22-1356	" " " " (Ch. 5C04)
C	Tuning "	22-1527	" " " " (Ch. 5C02Z)
	Dial Scale	26-354	
	" "	26-367	(Ch. 5C02Z only)
	Phono Cable	S11283	(Ch. 5C02 & 5C02Z)
	" "	S11287	(Ch. 5C04)
	AC Receptacle	52-188	(Ch. 5C04 only)

DISASSEMBLY INSTRUCTIONS

1 - Remove push-on type knobs; volume-control-on-off switch and tuning control.

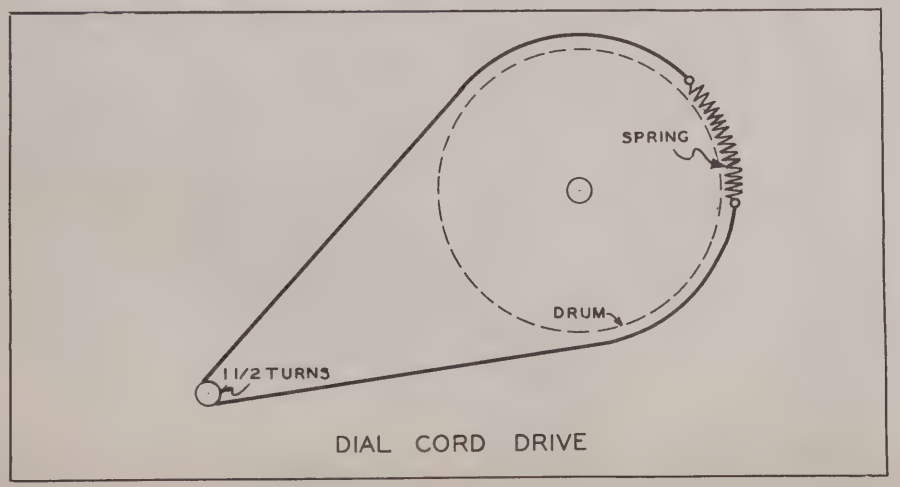
2 - Remove screw holding antenna loop to cabinet.

3 - Remove three antenna clip leads from antenna loop. Remove antenna loop.

4 - Remove four wood screws holding chassis board to cabinet. Remove chassis board.

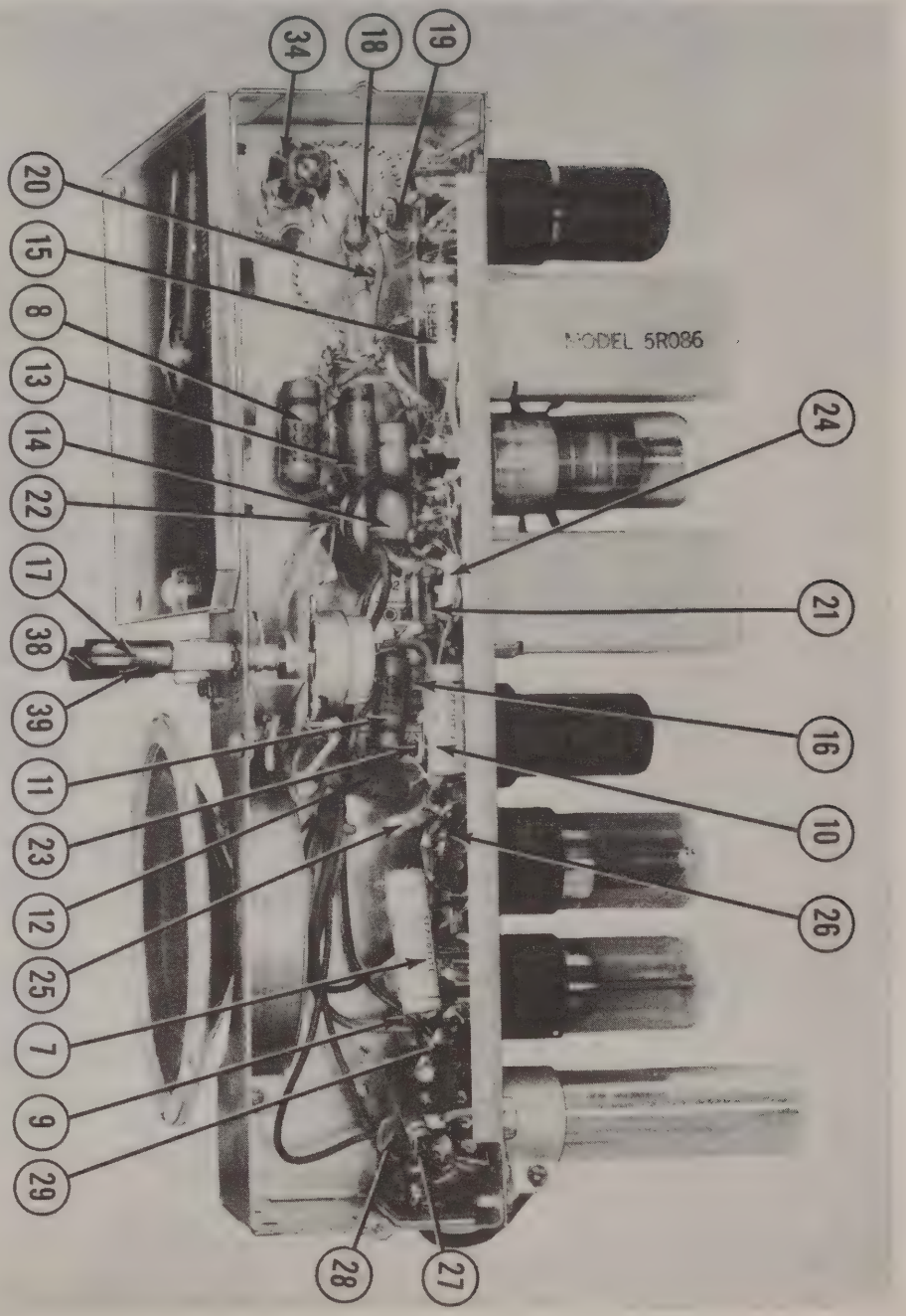
5 - Disconnect phono-motor plug.

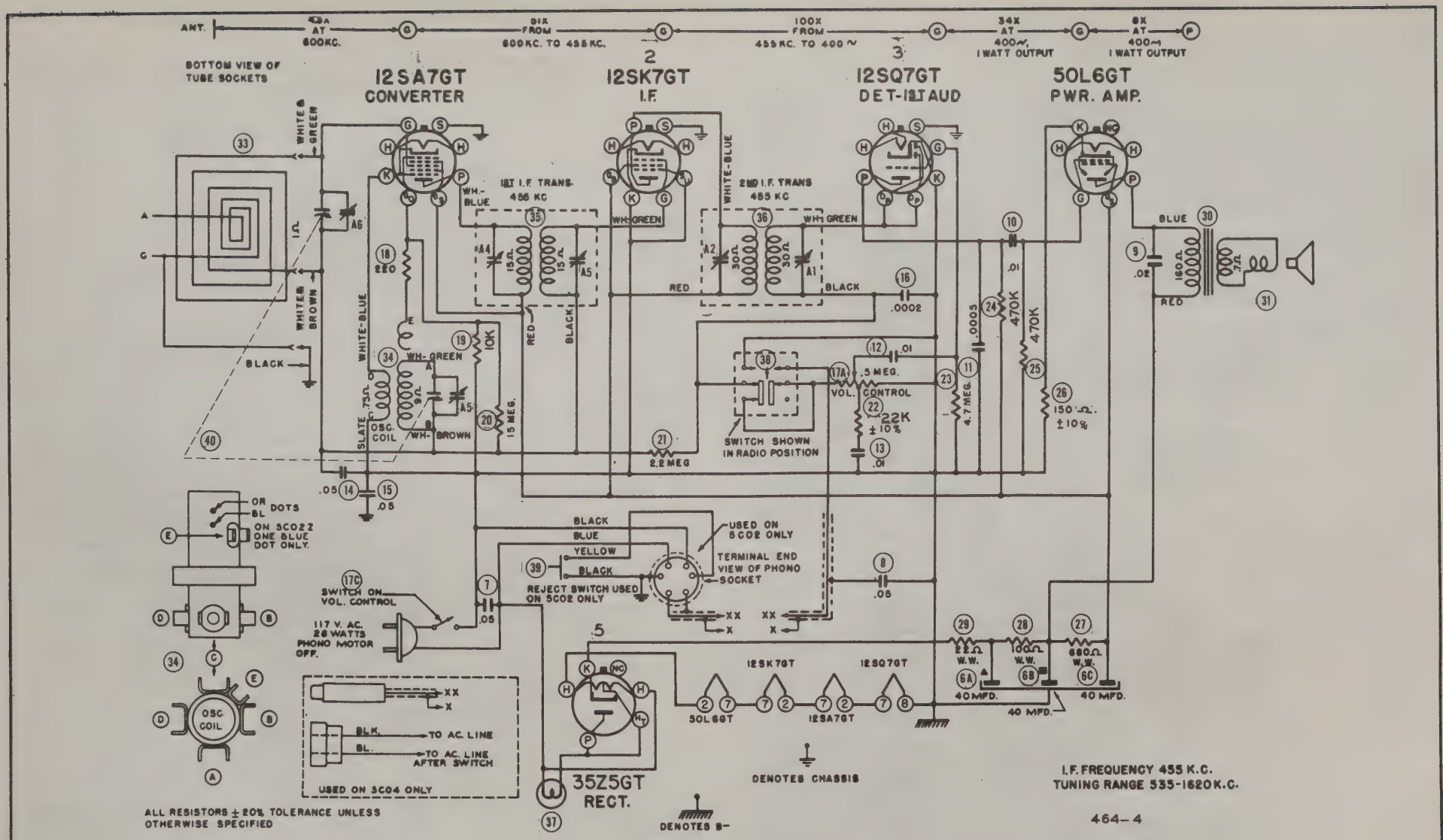
6 - Remove two screws holding chassis to chassis board.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	13V.AC	85V.DC	85V.DC	-2.1V.DC	0V.	25.2V.AC	-22V.DC
2	12SK7GT	0V.	25.2V.AC	0V.	-2V.DC	0V.	85V.DC	38.2V.AC	85V.DC
3	12SQ7GT	0V.	-47V.DC	0V.	-4V.DC	-4V.DC	46V.DC	13V.AC	0V.
4	50L6GT	0V	86V.AC	100V.DC	85V.DC	0V.	0V.	38.2V.AC	5.1V.DC
5	35Z5GT	0V.	117V.AC	112V.AC	0V.	112V.AC	0V.	86V.AC	113V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	INF	12.5Ω	41KΩ	41KΩ	11KΩ	.5Ω	24Ω	2.7MEG
2	12SK7GT	INF	24Ω	0Ω	2.7MEG	0Ω	41KΩ	36Ω	41KΩ
3	12SQ7GT	INF	3.75MEG	0Ω	490KΩ	490KΩ	511KΩ	12.5Ω	0Ω
4	50L6GT	INF	80Ω	41KΩ	41KΩ	510KΩ	0Ω	36Ω	135Ω
5	35Z5GT	INF	105Ω	102Ω	INF	102Ω	INF	80Ω	41KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ZENITH
MODELS 8H023-8H034

ZENITH MODEL 8H023

TRADE NAME Zenith Models 8H023-8H034 (Chassis No. 8C01)
MANUFACTURER Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET AM-FM, AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (EIGHT) Types, 6AG5 RF Amp., 6SB7 Converter, 6SG7GT IF Amp., 6SH7 IF Amp., 6SH7 Limiter, 6S8GT Disc.-Det-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier.

POWER SUPPLY 117 Volt AC-DC RATING - .310 Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1620KC F.M.-100 88-108MC F.M.-45 42-48.5MC

ALIGNMENT INSTRUCTIONS

Use isolation transformer in order to avoid hot chassis. VTVM (vacuum tube voltmeter) must have a 200KΩ resistor in series with hot lead (shielded). Volume control at maximum volume. For AM alignment keep signal generator output no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. When aligning the AM and FM IF's do not press hard on the alignment tool or threads in coil forms will strip making them impossible to adjust. When adjusting A15, A16, A17, and A18 considerable signal will be necessary and it will tune broadly. If signal generator does not have sufficient output load resistance may be increased over 300Ω.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) of 6SB7. Low side to chassis.	455KC modulated	BC	600KC	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output.
"	High side to pin #1 (grid) of 6AG5. Low side to chassis.	"	"	"	"	A7	" " minimum "
	Loop	1600KC modulated	"	1600KC	"	A8	Adjust for maximum output. Connect output of signal generator to 2 turn loop and radiate signal into wavemagnet.
	"	1400KC modulated	"	1400KC	"	A9,A10	"
.05 MFD	High side to pin #4 (grid) of 6SH7 (limiter). Low side to chassis.	8.3MC unmodulated	FM45		VTVM from pin 5 on disc.trans. to chassis	A11	Adjust for maximum reading
"	"	"	"		VTVM from pin 7 on disc.trans. to chassis	A12	Adjust for zero reading. Use sufficient signal to get positive and negative reading before zero setting
"	High side to pin #4 (grid) of 6SH7 (2nd IF). Low side to chassis.	"	"		VTVM from pin 4 (grid) of 6SH7 limiter to chassis.	A13,A14	Adjust for maximum reading.
"	High side to pin #4 (grid) of 6SG7 (1st IF). Low side to chassis.	"	"		"	A15,A16	Adjust for maximum reading Solder 300 ohm ½ watt carbon resistor across secondary of 2nd IF trans. (pin 2 to 3). Remove after adjusting A18.
"	High side to pin #8 (grid) of 6SB7. Low side to chassis.	"	"		"	A17,A18	"
270Ω res.	High side to ant. post. (Remove line ant.) Low side to chassis.	98MC unmodulated	FM100	98MC	"	A19	Adjust for maximum reading
"	"	"	"	"	"	A20,A21	" " " "
"	"	45MC unmodulated	FM45	45MC	"	A22	" " " "
"	"	"	"	"	"	A23,A24	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6AG5	6AG5	7BD	
2	Converter	6SB7	6SB7	8R	
3	1st IF Amp.	6SG7GT	6SG7GT	8BK	
4	2nd IF Amp.	6SH7	6SH7	8BK	
5	Limiter	6SH7	6SH7	8BK	
6	Disc.-Det.-AVC-AF	6S8GT	6S8GT		
7	Power Output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

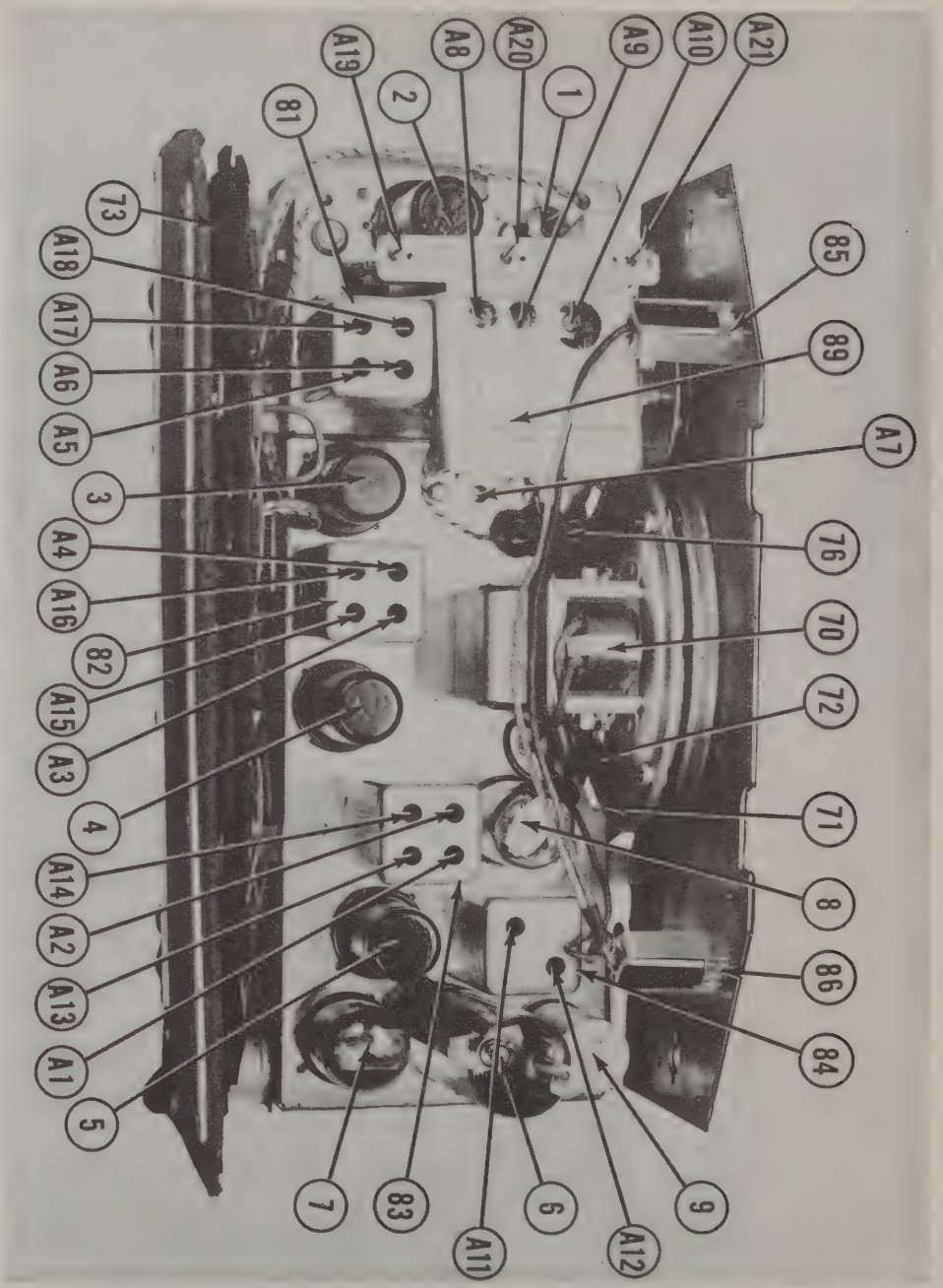
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
9A	40	150	22-1366	FP357	DY-2x40-150/40-25	EL-340	AF88D4A	UP6CJ44	▲ Filter
B	40	150							■ "
C	40	25					PRS25-20		Cath. Bypass
10	.05	200	22-1017	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
11	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5	Filament Bypass
12	.001	200	22-1439	TP404	S-6-001	TC-21	484-.001	DT6D1	" "
13	.2	200	22-1531	TP429	S-4-2	TC-2	484-.2	DT4P2	Tone Compensation
14	.02	400	22-1127	TP423	S-4-02	TC-12	484-.02	DT4S2	" "
15	.02	600	22-830	TP412	S-6-02	TC-12	684-.02	DT6S2	Audio Coupling
16	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5	Vol. Cont. Isolation
17	.003	600	22-288	TP406	S-6-003	TC-23	684-.003	DT6D3	Tone Compensation
18A	.008	200	22-1530	TP450					" "
B	.02	200		TP423	S-4-02	TC-12	484-.02	DT4S2	" " *
19	.01	600	22-196	TP410	S-6-01	TC-11	684-.01	DT6S1	Audio Coupling
20	.02	200	22-1386	TP423	S-6-02	TC-12	484-.02	DT4S2	Limiter Plate Bypass
21	.001	200	22-1439	TP404	S-6-001	TC-21	484-.001	DT6D1	Limiter Screen Bypass
22	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1	2nd IF Screen Bypass
23	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1	2nd IF Cath. Bypass
24	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1	1st IF Screen Bypass
25	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
26	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1	Conv. Plate Bypass
27	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1	Ant. Coupling
28	500	500	22-1138	MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
29	100	500	22-162	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	FM Antenna
30	475		27-87						Filament Bypass
31	475		27-87						" "
32	50		22-1367						Limiter Grid Cap.
33	475		27-87						Conv. Screen Bypass
34	50		22-1367						Osc. Grid Cap.
35	50		22-1492						Fixed Trimmer FM Osc.
36	18		22-1490						Fixed Trimmer
37	250	500	22-182	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Coupling
38	10		22-1489						" "
39	100	500	22-162	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Plate Decoup. FM
40	475		27-87						RF Screen Bypass
41	20		22-1491						Fixed Tuning FM Ant.
42	100	500	22-1488	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	AVC Filter

* Not in all models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
43	2.5 Meg.	1	63-1336				Volume Control & SW

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
44	220KΩ	½	63-717	BTS-220K	Red-Red-Yl. AVC Filter
45	680Ω	½	63-582	BTS-680	Blue-Gray-Br. RF Screen Filter
46	6800Ω	½	63-639	BTS-6800	Blue-Gray-Red RF Plate Load
47	220KΩ	½	63-296	BTS-220K	Red-Red-Yl. Converter Grid
48	33KΩ	½	63-765	BTS-33K	Or.-Or.-Or. Osc. Grid
49	680Ω	½	63-582	BTS-680	Blue-Gray-Br. Converter Screen Filter
50	680Ω	½	63-582	BTS-680	Blue-Gray-Br. Plate Decoupling
51	2.2 Meg.	½	63-722	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
52	680Ω	½	63-582	BTS-680	Blue-Gray-Br. 1st IF Decoupling
53	220Ω	½	63-579	BW-½-220	Red-Red-Br. 2nd IF Cathode
54	680Ω	½	63-582	BTS-680	Blue-Gray-Br. 2nd IF Decoupling
55	10KΩ	1	63-1216	BTA-10K	Br.-Blk.-Or. Limiter Screen Dropping
56	3000Ω	½	63-586	BTS-3300	Or.-Blk.-Red Bleeder
57	220KΩ	½	63-296	BTS-220K	Red-Red-Yl. De-emphasis
58	100KΩ	½	63-595	BTS-100K	Br.-Blk.-Yl. Discriminator Load
59	100KΩ	½	63-595	BTS-100K	Br.-Blk.-Yl. Discriminator Load
60	4.7 Meg.	½	63-602	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
61	47KΩ	½	63-593	BTS-47K	Yl.-Vi.-Or. Tone Compensation
62	10 Meg.	½	63-574	BTS-10 Meg.	Br.-Blk.-Blue Feedback
63	150Ω	½	63-1237	BW-½-150	Br.-Grn.-Br. Output Cathode
64	470KΩ	½	63-719	BTS-470K	Yl.-Vi.-Yl. Output Grid
65	470KΩ	½	63-597	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
66	30-67Ω	10	63-1339	ABA-100 #	Line Dropping & Pilot Light Shunt
67	22Ω	2		BT-2-22	Red-Red-Blk. Surge Limiter - See Note 1
68	47KΩ	½	63-593	BTS-47K	Yl.-Vi.-Or. Limiter Grid
69	47KΩ	½	63-593	BTS-47K	Yl.-Vi.-Or. Limiter Plate Decoupling

#Adjust slider to 32Ω on one side of tap and 68Ω on other side.
Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	INSTALLATION NOTES
70	1570Ω	3.15Ω	260Ω	.9Ω	Part of 49-516	A-3876	T-14S82	

SPEAKER

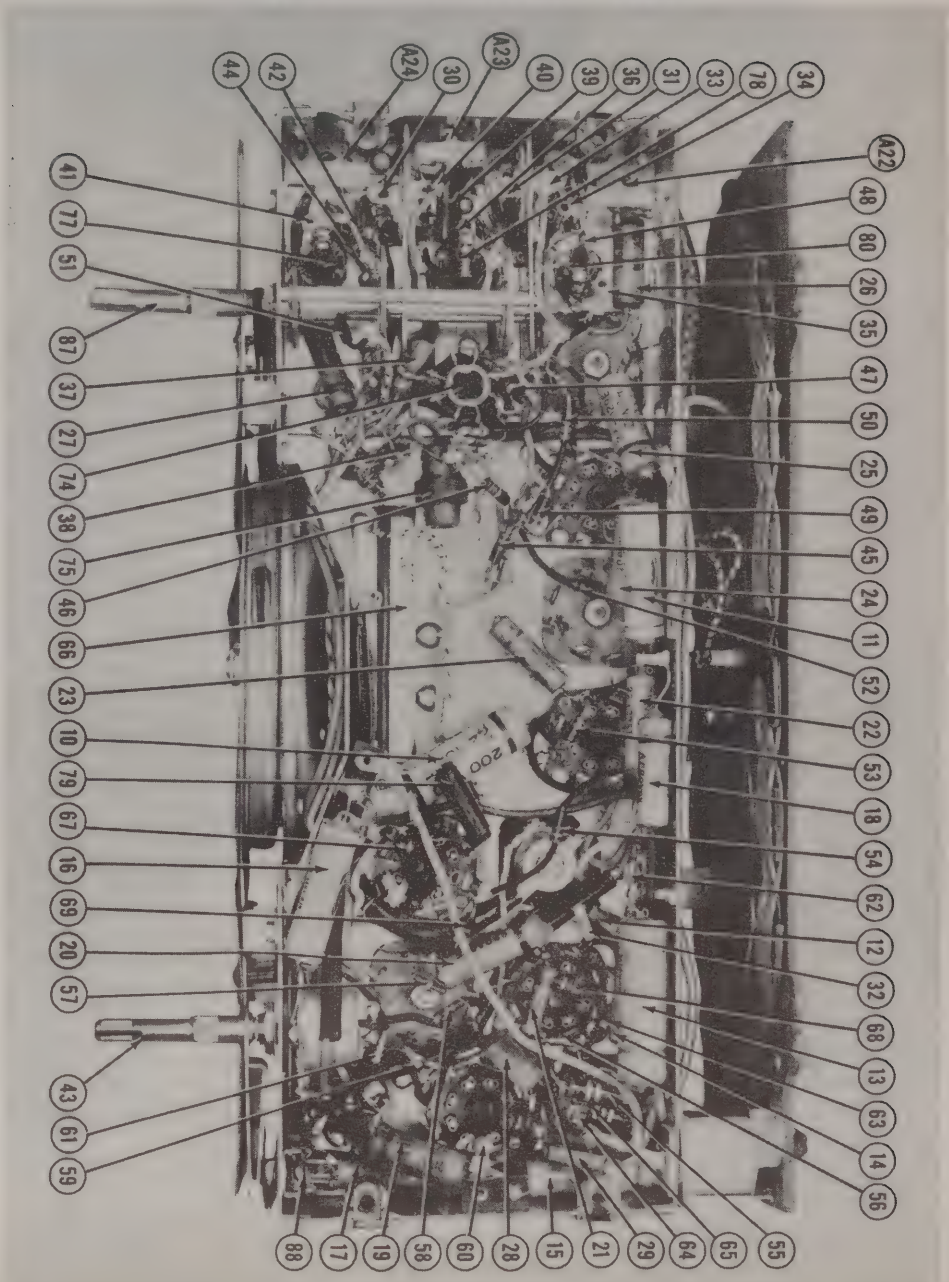
ITEM No.	RATINGS		REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
71	FIELD RES. 230Ω	VC IMP. 3.15Ω	49-516	ST-4501		†Add 450Ω 2W resistor in parallel with field coil.
72	CONE DIA. 4-7/8"	VC DIA. 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
73	BC Loop Ant.	0Ω	1Ω	S11135		
74	" Det. Coil		12Ω	S11156		
75	Wave Trap	40Ω		S12520		
76	BC Osc.Coil		9.8Ω	S11157		
77	FM Ant. "	0Ω	0Ω	S12257		
78	" Det. "	0Ω	0Ω	S12258		
79	RF Choke	0Ω		S12256		
80	FM Osc.Coil		0Ω	S12259		
81A	Input IF BC	9Ω	9Ω	S12249		IF Transformers for both freq. ranges in same can.
B	" " FM	.6Ω	.6Ω			
82A	Interstage BC	8.3Ω	7.5Ω	S12250		
82B	" FM	.7Ω	‡			
83A	Output IF BC	‡	‡	S12488		
83B	" " FM	‡	‡			
84	Disc. IF	1.2Ω	1Ω1Ω**	S12252		

‡Unable to read due to construction
**Secondary centertapped

CHASSIS—BOTTOM VIEW

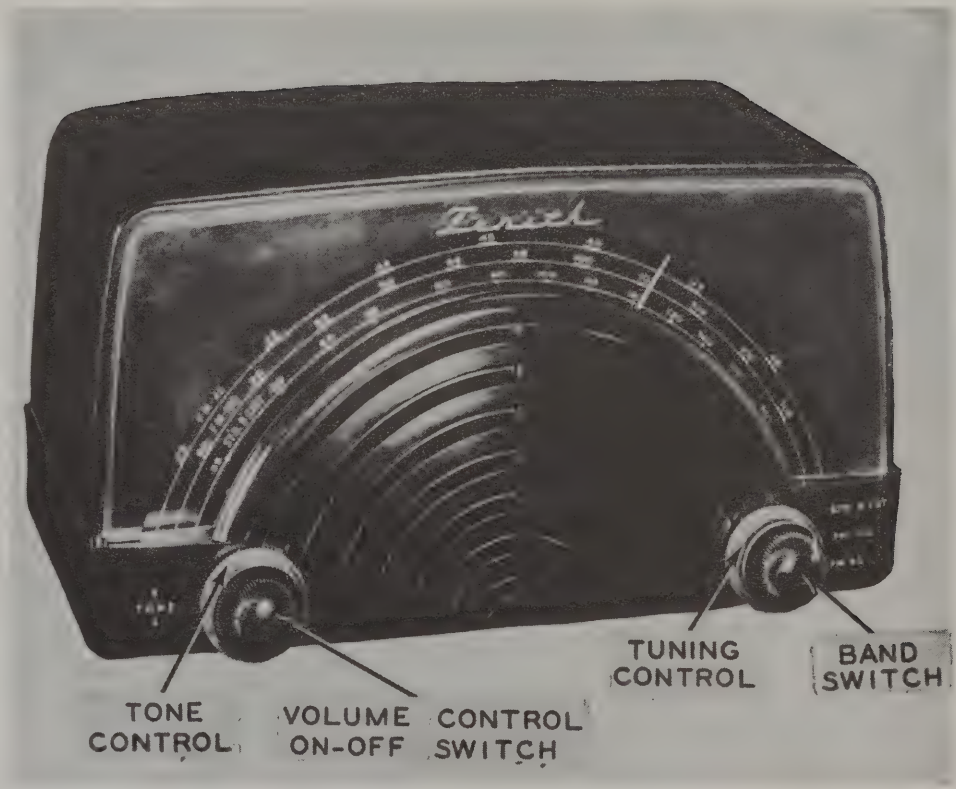


DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ZENITH PART No.		INSTALLATION NOTES
85	Bayonet	6-8	0.15	Brown	100-67		Type 47
86	"	6-8	0.15	"	100-67		" "

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
87	Band Switch	85-384	
88	Tone Switch	85-365	
89	Tuning Cap.	22-1359	3 Gang Variable Cap.
A22	Trimmer	22-1487	FM Osc. Adjustment
A23	"	22-1486	FM Det. Adjustment
A24	"	22-1485	FM Ant. Adjustment



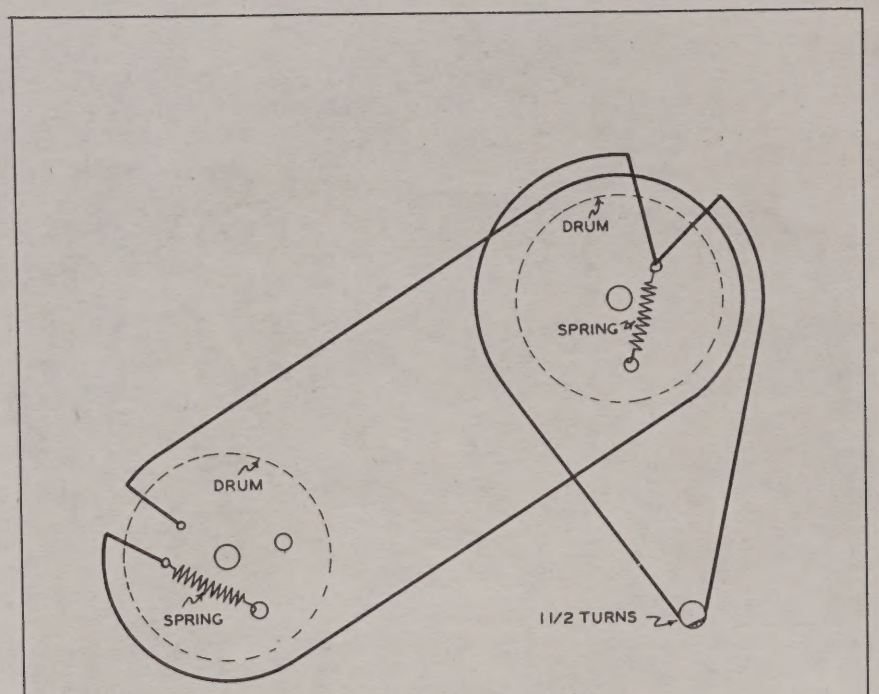
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AG5	-.4V.DC	0V.	26.5V.AC	33.5V.AC	50V.DC	95V.DC	0V.		
2	6SB7	0V.	33.5V.AC	93V.DC	87V.DC	-.4V.DC	0V.	39.6V.AC	-.02V.DC	
3	6SG7GT	0V.	26.5V.AC	0V.	-.4V.DC	0V.	87V.DC	19.5V.AC	87V.DC	
4	6SH7	0V.	12.5V.AC	1.15V.DC	0V.	1.15V.DC	90V.DC	19.5V.AC	90V.DC	
5	6SH7	0V.	12.5V.AC	0V.	-.27V.DC	0V.	21V.DC	6.3V.AC	57V.DC	
6	6S8GT	-.25V.DC	0V.	-.25V.DC	-.22V.DC	-.02V.DC	46V.DC	6.3V.AC	0V.	-.45V.DC
7	25L6GT	0V.	67V.AC	83V.DC	93V.DC	0V	0V	39.6VAC	6 V.DC	
8	25Z6GT	0V.	92VAC	117V.AC	117V.AC	117V.AC	97V.DC	67V.AC	117V.DC	

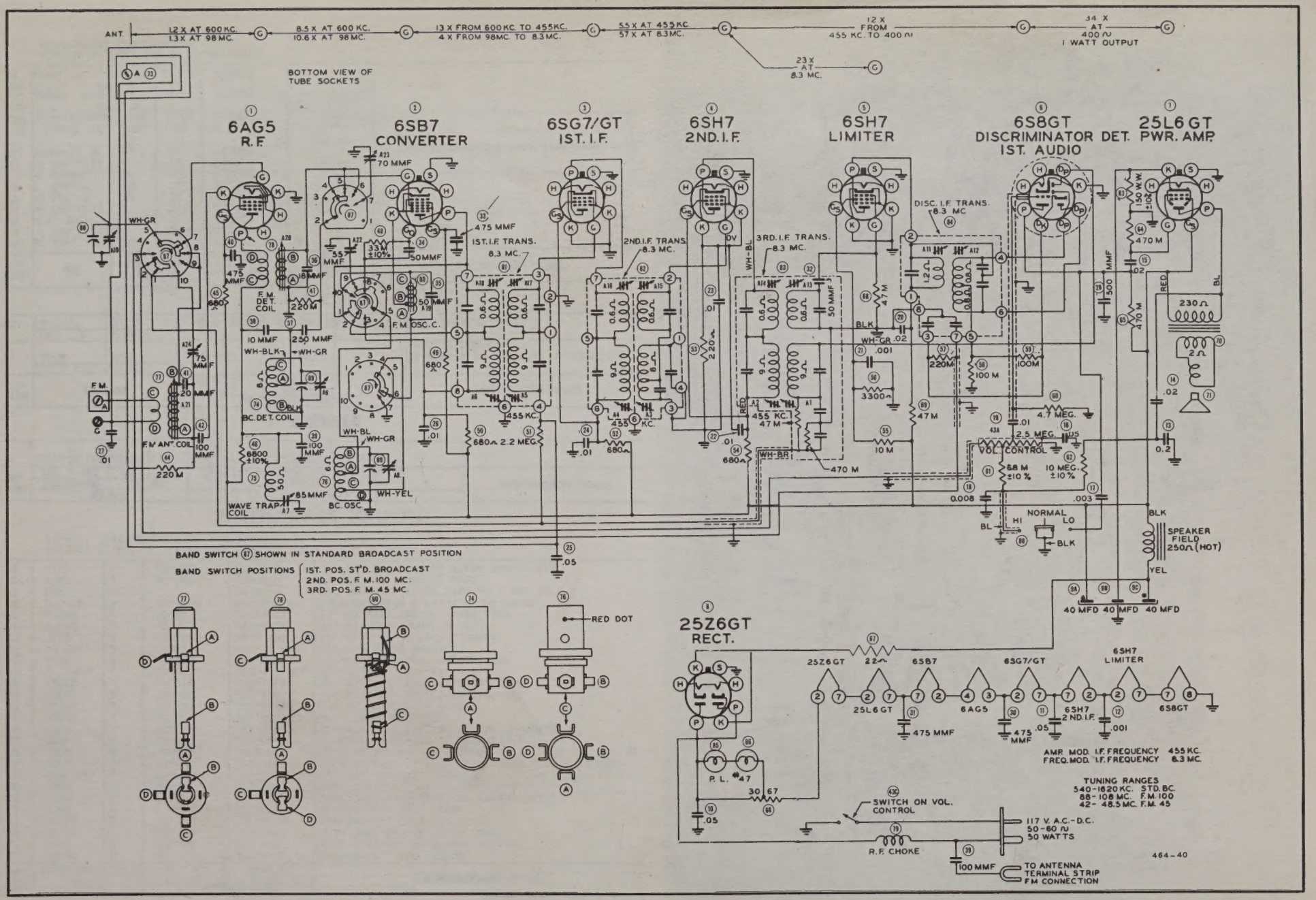
NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AG5	2.6MEG	0Ω	15.5Ω	18.5Ω	19KΩ	13KΩ	0Ω		
2	6SB7	0Ω	18.5Ω	13.5KΩ	13.5KΩ	30KΩ	.5Ω	23Ω	210KΩ	
3	6SG7GT	0Ω	15.5Ω	0Ω	2.4MEG	0Ω	13.5KΩ	11Ω	13.5KΩ	
4	6SH7	0Ω	6Ω	232Ω	1.25Ω	232Ω	13.5KΩ	11Ω	13.5KΩ	
5	6SH7	0Ω	6Ω	0Ω	39KΩ	0Ω	2.8KΩ	3Ω	54KΩ	
6	6S8GT	500KΩ	0Ω	105KΩ	105KΩ	195KΩ	420KΩ	3Ω	0Ω	4.1MEG
7	25L6GT	0Ω	40Ω	13KΩ	13KΩ	390KΩ	1NF	23Ω	145Ω	
8	25Z6GT	0Ω	51Ω	115Ω	13KΩ	40Ω	12KΩ	40Ω	13KΩ	



DIAL CORD DRIVE


ANT
12 X AT 600 KC.
1.3 X AT 98 MC.
8.5 X AT 600 KC.
10.6 X AT 98 MC.
13 X FROM 600 KC. TO 455 KC.
4 X FROM 98 MC. TO 8.3 MC.
55 X AT 455 KC.
57 X AT 8.3 MC.
12 X FROM 455 KC. TO 400 ∩
34 X AT 400 ∩
1 WATT OUTPUT
23 X AT 8.3 MC.
BOTTOM VIEW OF TUBE SOCKETS
6AG5 R.F.
6SB7 CONVERTER
6SG7/GT IST. I.F.
6SH7 2ND. I.F.
6SH7 LIMITER
6S8GT DISCRIMINATOR DET. IST. AUDIO
25L6 GT PWR. AMP.
25Z6GT RECT.
IST. I.F. TRANS. 8.3 MC.
2ND. I.F. TRANS. 8.3 MC.
3RD. I.F. TRANS. 8.3 MC.
DISC. I.F. TRANS. 8.3 MC.
F.M. DET. COIL
F.M. OSC. C.
F.M. ANT. COIL
BC. DET. COIL
BC. OSC.
WAVE TRAP COIL
VOL. CONTROL
NORMAL HI LO
SPEAKER FIELD 250∩ (HOT)
40 MFD 40 MFD 40 MFD
BAND SWITCH (87) SHOWN IN STANDARD BROADCAST POSITION
BAND SWITCH POSITIONS
IST. POS. ST'D. BROADCAST
2ND. POS. F. M. 100 MC.
3RD. POS. F. M. 45 MC.
RED DOT
AMP. MOD. I.F. FREQUENCY 455 KC.
FREQ. MOD. I.F. FREQUENCY 8.3 MC.
TUNING RANGES
540-1620 KC. STD. BC.
88-108 MC. F.M. 100
42-48.5 MC. F.M. 45
SWITCH ON VOL. CONTROL
117 V. A.C.-D.C. 50-60 ∩ 50 WATTS
R.F. CHOKE
100 MMF
TO ANTENNA TERMINAL STRIP FM CONNECTION
464-40

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.